

ROBERT MAILHAMMER

Trends
in Linguistics

The Germanic
Strong Verbs

Foundations and Development
of a New System

MOULDER

The Germanic Strong Verbs



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The Germanic Strong Verbs

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by

Robert Mailhammer

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Preface

This work is the revised version of my Ph. D. thesis submitted to the *Fakultät für Sprach- und Literaturwissenschaften* of the *Ludwig-Maximilians-Universität München* in October 2004 under the title “A Morphological and Etymological Study of the Germanic Strong Verbs”.

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Abbreviations

+	reconstructed form	Lith.	Lithuanian
++	reconstructed form based on a reconstruction	MHG	Middle High German
*	ungrammatical form	Nas.	Nasal
<	develops from	O	obstruent
>	develops into	OCS	Old Church Slavonic
Ar.	Arabic	OFr.	Old Frisian
Av.	Avestan	OHG	Old High German
OAv.	Old Avestan	OI	Old Indic
aor.	aorist	OIr.	Old Irish
Arm.	Armenian	ON	Old Norse
Balt.	Baltic	ONor.	Old Norwegian
C	Consonant	OS	Old Saxon
Croat.	Croatian	OSw.	Old Swedish
CS	Church Slavonic	OWN	Old West Nordic
E	Modern English	part.	participle
FG	full grade	pl.	plural
G	German	pres.	present
Gk.	Ancient Greek	pret.	preterit
Gmc.	Germanic	Pun.	Punic
Goth.	Gothic	R	Sonorant
Hebr.	Hebrew	sg.	singular
Hitt.	Hittite	Skrt.	Sanskrit
Ice.	Icelandic	Slav.	Slavonic
imp.	imperative.	subj.	subjunctive
ind.	indicative	Toch.	Tocharian
inf.	infinitive	Umbr.	Umbrian
IE	Indo-European	V	Vowel
L	Latin	Ved.	Vedic
Latv.	Latvian	VL	Vulgar Latin
LG	lengthened grade	Wel.	Welsh
Liq.	Liquid	ZG	zero grade

Chapter one

Introduction and preliminaries

1. Subject: The strong verbs of Germanic

The Germanic languages have always played a prominent part in linguistics: Several grammatical theories belonging to the foundations of modern linguistics are based on the English language. It was Sir William Jones's comparison of Gothic to the classical languages and Sanskrit that started the fruitful tradition of historical linguistics in modern times. The early work on the history of the Germanic languages and their relation to other Indo-European languages by Jacob Grimm, Franz Bopp and others, is of fundamental significance for contemporary historical linguistics. In particular, understanding language change would be virtually impossible without the insights and the data gained from these early diachronic investigations.

This study investigates Germanic, the common ancestor of all Germanic languages, focusing on the morphology and etymology of the so-called strong verbs from a systemic and quantitative point of view.¹ The first goal is to examine the Germanic strong verbs from a morphological point of view, centring on the typological position of ablaut in comparison to the parent language (Indo-European), the high degree of uniformity and organization, and finally the fusional processes involved in their genesis. The second aim of this study is a quantification of the etymological situation of

-
1. Although the terms *Proto-Germanic* or *Common Germanic* – translations from German *Urgermanisch* and *Gemeingermanisch* – are commonly used to refer to the Germanic parent language, in this study I will employ the term *Germanic* for reasons of simplicity and also because, in my opinion, this is the most adequate name for it. Since Germanic – as a reconstructed language – usually is seen as an idealized, homogenous entity without synchronic dialectal variation, *Common Germanic* is an unnecessary complication, whereas *Proto-Germanic* is somewhat misleading because it might be interpreted as referring to an earlier chronological stage whereas it really represents the same idealized concept as *Germanic*. The same applies to the terms *Indo-European*, *Proto-Indo-European* and the like, of which the term *Indo-European* will be used here.

the strong verbs in order to determine the proportion of hitherto non-etymologized words for this central part of the Germanic lexicon. Furthermore, the relative significance of this quantitative analysis will be evaluated through comparisons with two related languages, Sanskrit and Ancient Greek. These research goals are motivated by the following facts and preliminary considerations on Germanic in general and on the strong verbs in particular.

The strong verbs belong to a set of characteristic features distinguishing Germanic from the great majority of its Indo-European relatives but also from the reconstructed parent language. Other well-known examples are the fixed accent on the initial syllable and the fact that the Germanic tense system with its bipolar opposition between present and preterit appears drastically reduced in comparison to the system that has been reconstructed for Indo-European.² One of the most peculiar idiosyncrasies of Germanic,

-
2. Polomé (1979) suggests a different reconstruction for the tense system of Indo-European, based mainly on Hittite. According to this, the situation found in Germanic and Hittite is archaic and the rather complex systems of e.g. Sanskrit and Ancient Greek represent more recent innovations. This alternative view has not found much support since there are a number of problems attached to it.

One is that Hittite is the Indo-European language with the earliest attestation, whereas Germanic can only be reconstructed from its different daughter languages, which are attested over a millennium later. In other words, Germanic would then have preserved these archaisms for quite a long time and this implies nearly total isolation, which cannot be assumed for Germanic at all stages. In particular the extreme generalization of ablaut and the high proportion of non-Indo-European vocabulary do not suggest isolation but rather the contrary (cf. Werner 1984: 219).

Another problem is the development of the morphological category *tense* prior to that of *aspect*. According to Bybee (1985), supported by Dahl (1985) and Leiss (1992), the evolution of the grammatical categories *aspect*, *tense* and *mood* universally follows a unidirectional path (but see Lass 2000 for a sceptic statement on unidirectionality). Following this, *aspect* is required before *tense* can be developed and only then the category 'mood' evolves. For Hittite an aspectual opposition has never been claimed, some authors explicitly state that Hittite did not have the category *aspect* (cf. Meid 1979; Cowgill 1979). Germanic is said to have had the aspectual prefix ⁺*ga-* to express the perfective aspect (e.g. Kuryłowicz 1968). However, this claim is mainly based on Gothic (see e.g. Leiss 2002a, b) and thus cannot be fully secured for Germanic. For Hittite (cf. Watkins 2001) and for Germanic (cf. the discussion in the main text), a substantial non-Indo-European influence has been proposed.

however, is the extreme systematization and functionalization of ablaut in the system of the strong verbs. The dominant position of verbal ablaut has frequently been noted as a hallmark of Germanic, expressed in the following sample quotations:

Von einzigartiger Bedeutung wurden die einsilbigen kurzvokalischen Ablautreihen im Germanischen. Sie bilden die Grundlage und das Gerippe von fünf aus sieben Klassen der sog. starken Verba, die mit fast unerhörter Zähigkeit bis ins heutige Deutsch weiterleben. (Szemerényi 1990: 89)³
Ablaut is a far more important feature in Germanic than in any other Indo-European language. (Baldi 1983: 134)

Bei den Verben verzeichnen wir als germanische Neuerung die Ausbildung des ie. Ablauts zu einem wirklichen System. (von Polenz 1979: 20)⁴

Als ein zentrales Ausdrucksmittel im Bereich der Morphologie ist der Ablaut im Germanischen bewahrt und ausgebaut worden. (Meier-Brügger 2000: 139)⁵

Indeed, it is in the verbal system where the high degree of organization through a systematized and functional ablaut becomes especially apparent. The Germanic strong verbs, which include all primary verbs, are almost exclusively categorized according to their ablaut patterns, the well-known *ablaut classes*. Although ablaut itself is an inherited morphological property, its extremely dominant position is unique among the Indo-European languages. Several authors have remarked on typological resemblances between verbal ablaut in Germanic and the Semitic languages (e.g. Ku-

From this brief discussion it becomes clear that the view advanced by Polomé (1979) is too problematic and too controversial to be discussed any further. In one of the most recent studies on the Indo-European verbal system, Jasanoff (2003), confirms its complexity.

3. 'Unparalleled significance was attained by the monosyllabic short-vowel ablaut series in Germanic. They form the foundation and the skeleton of five out of seven classes of the so-called strong verbs, which have lived on with almost scandalous tenacity into Modern German.' (Translation by Theo Vennemann in Vennemann 1998a: 41, n.72)
4. 'As a Germanic innovation among the verbs we note the development of IE ablaut into a genuine system.' All translations are my own unless indicated otherwise.
5. 'As a cardinal means of expression in the field of morphology, ablaut was preserved and extended in Germanic.'

łowicz 1961; Kortlandt 1992; Scheer 1995; Ségréal and Scheer 1997; Vennemann 1998a: 41).⁶

Another peculiarity of Germanic is that its lexicon contains a considerable amount of vocabulary without an Indo-European etymology. Vennemann (1984: 105–106) presents a survey of the literature from which the following quotations are taken:

Auch der Wortschatz, den wir durch Vergleichung der germanischen Sprachen als gemeingermanisch erschließen können, weist dem Indogermanischen gegenüber wesentliche Verschiedenheiten auf. Viele gemeingermanische Wortstämme lassen sich in den anderen ie. Sprachen nicht nachweisen. (von Polenz 1978: 22)⁷

Es steht allerdings fest, daß sich etwa ein Drittel des germanischen Wortschatzes nicht aus dem Indogermanischen herleiten läßt. (Hutterer 1975: 44)⁸

Das germanische Wortgut gilt zu stark einem Drittel als nicht etymologisiert. (Bach 1970: 64)⁹

Möglicherweise gehen auf dieses ethnische Substrat die Anteile am Wortschatz des Germanischen zurück (ungefähr ein Drittel), die sich nicht aus dem Indogermanischen herleiten lassen. (Schildt 1981: 29)¹⁰

It is particularly striking that this problematic vocabulary has a high frequency in certain semantic fields, including military, nautical, legal, social, agricultural terms, names for plants and animals, as well as words from everyday life (see Vennemann 1984: 107–109 for a survey of semantic fields as well as a list of corresponding examples). In addition, it has been suspected that the strong verbs in particular contain a high proportion of

6. Of course, there are differences as well, as particularly Kuryłowicz (1961: §§13–14) points out. Nevertheless, in the use of ablaut Germanic clearly deviates from other Indo-European languages. This point will be discussed in chapter two.

7. ‘Also the vocabulary that we can reconstruct as Common Germanic through the comparison of the Germanic languages exhibits significant differences compared to Indo-European. Numerous lexical stems of Common Germanic cannot be posited for the other IE languages.’

8. ‘It is an actual fact that about a third of the Germanic vocabulary cannot be reconstructed as Indo-European.’

9. ‘Of the Germanic vocabulary a good third cannot be etymologized.’

10. ‘It is possible that those parts of the Germanic lexicon which cannot be traced back to Indo-European (about a third) are due to this ethnic substrate.’

non-etymologized vocabulary (e.g. Scardigli 1980: 385; Vennemann 1998a: 42).

2. Internal development vs. external influence

To account for the Germanic peculiarities described above, mainly two explanations have been advanced. Traditional approaches have posited internal language change, whereas alternative hypotheses have proposed external influence, i.e. language contact, as the force behind the changes. Vennemann (2000: 234) illustrates the traditional view before presenting his own, alternative account:

Der traditionelle indogermanistische und germanistische Blick auf die indogermanischen Einzelsprachen und insbesondere das Germanische lässt diese als organische Weiterentwicklung des Indogermanischen erscheinen.¹¹

This view largely rules out a substantial external influence on Germanic (see e.g. Neumann 1971: 95–96; Meid 1984: 101; Seebold 1986: 177). The strong verbs in particular are seen to be firmly anchored in the parent language, as most of them are primary verbs (see Meid 1971: 42)¹². The standard literature largely works descriptively because the postulate of organic development from Indo-European leaves only two possible options. That is, any peculiar feature that cannot be traced back to Indo-European through comparative or internal reconstruction must either be an internally motivated Germanic innovation or an archaism. This certainly limits the explanatory power of traditional approaches. Nevertheless, there exists a strange confidence, one might call it ‘belief’, that Germanic with all its idiosyncrasies can be reconstructed as purely Indo-European.

Wenn man das Germanische nach rückwärts aufrollt, d.h. wenn man die Indizien, die Morphologie, Wortbildung, Etymologie und Distribution der sprachlichen Elemente an die Hand geben, auswertet, dann wird man im all-

11. ‘The traditional Indo-Europeanist and Germanicist view on the individual Indo-European languages, and especially on Germanic, portrays them as products of an organic development from Indo-European.’

12. Although primary verbs as parts of the core morphology and vocabulary tend to be fairly resistant against external influence, research on language contact has shown that “practically any linguistic feature can be transferred from one language to another, if the circumstances are right” (Winford 2003: 25, see also Thomason and Kaufman 1988: 74–76).

gemeinen die bekannten gemeinindogermanischen Strukturen zurückgewinnen können. (Meid 1984: 104–105)¹³

By contrast, hypotheses involving external influence have been able to shed more light on hitherto unexplained phenomena. Studies by Hans Krahe, Hans Kuhn and others have highlighted the fact that e.g. particular features can be found not only in Germanic but also in other western Indo-European languages, such as the fixed accent on the initial syllable, which is also found in Celtic and Italic. Additionally, there are parts of the vocabulary that have led authors to the assumption of a *Sprachbund* comprising Balto-Slavic and Germanic. Prominent other examples of approaches of this kind are Krahe's *Alteuropäischer Kreis* ('Ancient European Sphere'), based on his Old European Hydronymy, and Kuhn's *Nordwestblock* ('North-West-Block').

However, the notion that certain features are common among Western-Indo-European languages only defers the matter, since many of them are still unexplained. A number of authors, going back as far as the 18th century, have therefore suspected that the genesis of Germanic, especially the system of strong verbs, occurred through language contact, probably with a non-Indo-European language.

There is a similar reason, though not quite so forcible, for supposing that both the Gothick and Celtick, though blended with a very different idiom, had the same origin with the Sanscrit.¹⁴

Diese Dialektgruppe [i.e. Germanic] ist entweder indoeuropäischen Ursprungs, weist jedoch starke Sub- wie Superstrateinwirkungen verschiedener Provenienz auf (der wahrscheinlichere Fall) oder sie ist nicht-

-
13. 'If Germanic is traced back, i.e. if the hints provided by its morphology, word-formation, etymology and distribution of linguistic elements are evaluated, then generally, the well known Common-Indo-European structures will re-emerge.'

Vennemann (2000: 235) calls this 'the view of 19th century romantic philology' ('der Blick der romantischen Philologie des 19. Jahrhunderts'). That this view is still around in the 21st century was demonstrated to me by Frank Heidemanns (Cologne, summer 2002, p.c.), who told me that the majority of problematic words in Germanic would be accounted for once new word-formation rules are discovered. Since none of these rules have been found recently this notion can be called a *belief*, or rather a *conviction*.

14. Sir William Jones in his well-known statement on the relation of Indo European languages. Quoted from Vennemann (1998c: 122), as the original publication is unavailable to me.

indoeuropäischen Ursprungs und wurde im Zuge einer Expansionsbewegung nachhaltig indoeuropäisiert (der weniger wahrscheinliche Fall). (Braunmüller 2000: 272)¹⁵

Wir dürfen auch in der Vorgeschichte der Germanen eine Begegnung, wenn nicht gar eine Verschmelzung von Stämmen stark idg. Prägung mit Volksgruppen annehmen, die völlig außerhalb der alten idg. Gemeinschaft standen. ... Die Beweise liefern uns einige Erscheinungen der Laut- und Formenlehre und des idg. Wortschatzes. (Scardigli 1973: 45)¹⁶

Das Germanische zeigt eine so charakteristische Eigenentwicklung, z.B. in der starren Festlegung der Betonung, der radikalen Vereinfachung des Verbsystem und in vielen anderen Zügen, immer in der Richtung von der Vielfalt der Ausnahmen zu schematischer Regelmäßigkeit, daß hier der Schluß besonders nahe liegt, das reich entfaltete Indogermanisch sei in den Mund einer vorher anderssprachigen Bevölkerung geraten, die die Regeln erfasst, die Ausnahmen aber nicht berücksichtigt habe. Auch läßt sich der germanische Erbwortschatz zu einem großen Teil – nach Schätzungen zu einem Drittel – nicht auf indogermanische Wurzeln zurückführen. Auch das legt es nahe, die Einwirkung einer anderen nichtindogermanischen Sprache zu vermuten. (Eggers 1980: 26)¹⁷

Nevertheless, as Thomason and Kaufman (1988: 28–35) in their standard textbook on language contact make clear, the existence of strange phenom-

-
15. 'This group of dialects is either of IE origin, although displaying strong effects of both substrata and superstrata of various provenience (the more probable case), or it is not of IE origin and was Indo-Europeanized in the wake of an expansive movement (the less probable case).'
 16. 'Within the pre-history of the Germanic people, we may assume the encounter, if not the merger, of tribes of a strong IE stock with groups of people which were completely outside the old IE community. ... The evidence is provided by some phenomena belonging to phonology and morphology, as well as the IE vocabulary.'
 17. 'Germanic exhibits such unique and characteristic developments, e.g. the rigid fixation of word stress, the radical simplification of the verbal system and in many other ways, always directed from the plurality of exceptions towards schematic regularity, that make the inference particularly attractive that the richly developed Indo-European language was adopted by people with a formerly different mother tongue who learned the rules but not the exceptions. Additionally, it is impossible to trace back a large part of the Germanic core vocabulary to Indo-European – a third, according to estimates. This too suggests the influence of a different, non-Indo-European language.'

ena in a language, even if they are typologically highly peculiar, does not automatically permit the conclusion of language contact. This is only justified if the internal reconstruction of a particular property is impossible and a source language can be identified for it. Thomason and Kaufman (1988: 35) emphasize the significance of extra-linguistic conditions: “Linguistic interference is conditioned in the first instance by social factors” (cf. e.g. also Apple and Muysken 1987: 5 and Winford 2003: 25). For historical linguistics this obviously means that the historical situation of any given language is of high significance in exploring language change, particularly if it is viewed as contact-induced (cf. Sankoff 2004 and also Oesterreicher 2001 on the historicity of language).

From what has just been said, it follows that the situation of the Germanic strong verbs certainly permits an investigation of hypotheses advancing language contact as a factor in their genesis. The methods of comparative as well as internal reconstruction have so far failed to satisfactorily explain the morphological development of the strong verbs. What the above-mentioned alternative approaches lack, however, is a detailed account of the strong verbs’ peculiarities within a unified framework. In particular, the exact extent of the non-etymologized vocabulary is unknown, given that a quantitative study has never been conducted. If external influence is indeed to be assumed, the historical background and the source language(s) have to be identified and examined. Without this, the suggestion of language contact as a motivating factor behind the genesis of Germanic seems nothing more than an unfounded claim. There are various conceivable forms of language contact, yet the vast majority of authors, including the standard literature, at most accept the mere possibility of some kind of non-Indo-European influence. However, the next logical step in such a line of thinking would be a scientific investigation, including a detailed and quantitative study of the lexicon and the prehistory of Germanic. Unfortunately, this has not been done; therefore, the Germanic strong verbs, according to the *communis opinio*, have remained an independent Germanic innovation, although, admittedly, a peculiar one.

3. A comprehensive theory of external influence

In sharp contrast to the general assumption that the system of the Germanic strong verbs is a language-internal innovation, Theo Vennemann has pro-

gressively advanced a comprehensive theory accounting for the genesis of Germanic, including the strong verbs.¹⁸ According to this theory, Germanic was shaped by a substratum of Vasconic languages, as well as by a superstratum of Atlantic languages.¹⁹ Vennemann (1984a) shows that a good deal of the problematic part of the Germanic vocabulary is distributed across semantic fields that are prototypically prone to being influenced by superstratum languages, i.e. military, administrative as well as cultural terms. By contrast, there are fewer non-etymologized words that are usually attributed to substratum influence, e.g. names of plants, animals and so forth. This becomes clear from comparisons with well-studied cases like English and French, which contain various amounts of superstratum and/or substratum vocabulary whose sources have already been identified. Since then Theo Vennemann has proposed a number of etymologies for unexplained Germanic words based on Semitic languages or Basque. Some of these are key words that provide vital insights into the Germanic prehistory, such as the Germanic words for ‘nobility’, ‘family’ and ‘people’.²⁰ It is instructive that words of all three meanings in English were borrowed from a superstratum language, reflecting the social situation at the time of borrowing. In addition to lexical problems, the theory also proposes solutions for structural puzzles of Germanic and its daughter languages, e.g. the split word order and the Germanic accent. Bearing in mind the morphological idiosyncrasies of the Germanic strong verbs, Vennemann (1998a: 42) recalls an “observation of which little has been made in the past. Quite a few of the Germanic strong verbs have no good Indo-European etymologies” (see already Scardigli 1980: 385). As a solution, Vennemann (1998: 41) suggests an explanation of the genesis of the Germanic strong verbs under the influence of a Semitic language:

Ablaut, as every linguist knows, and in particular verbal and deverbal ablaut, is the typological hallmark of Semitic; this includes the oldest attested language, Akkadian, and may therefore safely be inferred for the Atlantic [i.e. Semitic] languages. The Atlantic adstrata and superstrata of Germanic are gone, which suggests that these languages were all given up in a process of language shifting in which the native speakers of Atlantic languages

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18. See e.g. Vennemann (2000, 2003c), including bibliographical references; for the strong verbs cf. Vennemann (1998a).
 19. Within Vennemann’s theory ‘Vasconic’ refers to languages related to Basque and ‘Atlantic’ to Semitic languages.
 20. Cf. Vennemann (1998b) on ⁺*folk*- ‘people’, (2001) on ⁺*apal*- ‘nobility’ and (2003b) on ⁺*sibjō*- ‘family’.

learned pre-Germanic; i.e., speakers of a language with a powerful verbal and deverbal ablaut system had to learn a language with lots of different little irregular verbal and deverbal ablaut patterns. In attempts to make sense of these patterns, and with the expectation of regularity based on their previous native linguistic experience as speakers of Atlantic languages, they overgeneralized one or two of the most noticeable patterns they observed in pre-Germanic, ignoring all the rest. In this way they created dialects of Germanic that were likewise characterized by a powerful verbal and deverbal ablaut system. These new dialects were spoken in part by members of those social groups that included the former superstratum speakers, which suggests that they became prestige dialects. As prestige dialects they superseded in time all the other pre-Germanic dialects and formed the basis for the emerging Proto-Germanic language.

Theo Vennemann's theory would also explain another characteristic of the strong verbs, namely the well-known fact that their homogeneity is the result of a process of fusion. The over-generalization of ablaut obscured significant morphological and semantic distinctions of which certain irregularities in the system bear witness (see chapter two). Stedje (1987: 109–110) remarks that “an extended adstrate or diglossia situation often causes a structural approximation of the languages involved, which is possible even at the morphological level”.²¹ Weinreich ([1953] 1968: 7) already drew attention to what is standard knowledge in modern language contact theory, namely that “language contact can result in such far reaching changes that the affected language assumes a different structural type”.

The idea of prehistoric contact between Indo-European and Semitic languages is not new. Linguists in the past and present have shown that insular Celtic possesses distinct non-Indo-European features. It was subsequently demonstrated and established that this is due to contact with Afroasiatic languages (see e.g. Morris-Jones 1900; Pokorny 1927–30; Gensler 1993). As Vennemann (1998a: 4) points out, his idea “is merely a generalization from Ireland ... to the entire Atlantic seaboard, the megalithicized coastal regions stretching from North Africa and Spain to southern Sweden”. In addition to the existence of a parallel case, Vennemann's theory possesses a methodological advantage over competing approaches. The traditional view is not much more than an unproven claim based on the postulate of organic development from Indo-European and

21. Translation by Theo Vennemann in Vennemann (2003a: 11). See also the vast literature on language contact theory (e.g. Weinreich 1968: 3; Thomason and Kaufman 1988: 48 and Winford 2003: 25).

thus not a substantiated explanation. Propositions of some kind of language contact have a similar problem, as they offer a new path of explanation, but do not present a solution to the problem. The theory of prehistoric language contact of Germanic just sketched, in contrast, does not suffer from these disadvantages, as it posits an explanation for the Germanic problems drawing evidence from linguistics, archaeology, mythology, history and sociology.

In a lot of ways Vennemann's approach proposing language contact as the motivating force behind the development of the Germanic strong verbs fulfils the criteria set by Thomason and Kaufman (1988) mentioned above. In particular, the definition of the social and historical circumstances, including a time frame, which they project as a major requirement, is accounted for. There are, however, two points that need further clarification before this theory can be fully applied to the Germanic strong verbs. First, although the source, i.e. the Semitic verbal ablaut system, has been identified, the process of the proposed development has only been sketched (see Mailhammer 2006 for a concrete proposal). It is in need of further verification. Secondly, even though several etymologies of strong verbs based on Semitic have been published (see e.g. Mailhammer, Laker, Vennemann 2003 and Vennemann 1998a, b, 2002, 2003bc, 2004a), more work has to be done in this area of the Germanic lexicon. Most notably, this includes the collection of quantitative data as a base for future etymological research, a task that represents a central part of the present study.

4. Structure of this study

The research goals formulated in 1. above are directly motivated by the research situation of the strong verbs sketched above. Although the literature acknowledges the morphological peculiarity of the Germanic strong verbs, their more or less pure Indo-European origin is not questioned by the vast majority of authors (see e.g. the quotation from Meid 1984 above and also Meid 1971: 42). This is based on two assumptions.

First, the Germanic strong verbs are seen as largely inherited from the parent language, therefore any substantial external influence is considered improbable. This somewhat circular position is, however, not supported by any empirical evidence, since there exists no quantitative investigation of the etymological situation of the Germanic strong verbs. Hence, the exact number of Germanic strong verbs either possessing or lacking an Indo-European-etymology is still unknown. Even though Germanic words with-

out an Indo-European etymology do not automatically have to be considered non-Indo-European – generally the Germanic vocabulary is seen as inherited unless proven otherwise because Germanic genetically is an Indo-European language – the chance for a non-etymologized word being a loanword is higher than for a lexeme for which an etymological connection with the parent language has already been established and accepted in the literature. Therefore, a quantification of the etymological situation of the Germanic strong verbs is the first step in an investigation of the origin of the Germanic strong verb system. Such a quantification would provide a basis for further research, and would, of course, be an empirical basis for any statement on the etymological situation of the Germanic strong verbs. However, it has to be emphasized that such an investigation is neither designed to find etymologies for hitherto non-etymologized lexemes, nor is it meant to show how many of the Germanic strong verbs are not of Indo-European origin. Rather, the aim of the analysis carried out in this study is to determine how many strong verbs have Indo-European etymologies in contrast to those that do not. Thus, one of the central aims of the present study is to ascertain the accuracy of the traditional position considering the majority of the Germanic strong verbs as inherited.

The second assumption on which the traditional view is based is that the vast majority of the strong verbs are believed to be inherited because the morphological elements forming the foundation of the inflectional system of the strong verbs are without doubt inherited from the Indo-European parent language. Nonetheless, despite the correctness of the facts, the conclusion drawn is not necessarily compelling. This is so because, although the morphological components of the Germanic strong verbs are Indo-European, the lexical material does not have to be of the same origin. This can be illustrated with a well-known example. Even though the conjugational system of Modern English is clearly inherited from Germanic, no one would claim that the vast majority of English verbs are also of Germanic origin. This is simply because the bulk of the etymological evidence undisputedly proves that a sizeable proportion of the verbs are not of Germanic provenance but the result of extensive borrowing from Norman French and other sources. Moreover, apart from similar cases of relexification, the literature on language contact presents numerous cases of second language acquisition in which the learners re-analyse grammatical elements in the target language in accordance with their native grammar without directly importing material of their native language. Re-analyses of this kind can lead to alterations in e.g. the functional value of forms and categories as well as in the organization of the entire system without leav-

ing direct morphological traces (see e.g. the cases of interference in Weinreich 1968: 30, 39).

These considerations show that the majority of diachronic investigations on the Germanic strong verbs have been influenced by a methodological bias that has limited research to the similarities, leaving the peculiar deviations largely unexplained. This bias is to a large degree the result of the assumption that virtually all Germanic strong verbs are of Indo-European origin. In particular, their morphology is generally perceived as a continuation of the verbal system of the parent language. As a result, the hallmark of the Germanic strong verbs, namely the peculiar uniformity and simplicity they attained through the functionalization and systematization of ablaut, has not been evaluated from a typological and contrastive point of view. However, this does not at all mean that the view of Germanic as an Indo-European language is to be given up. It only means that Germanic, like any other language, should be investigated with an adequate open-mindedness that allows for the possibility of external influence, even if it turned out to be extensive. If a particular feature of Germanic cannot be explained by an internal reconstructive approach, it seems more than justified to look for a solution elsewhere. This can involve related or non-related languages or even non-linguistic factors. In addition, Germanic, like any other language, should be investigated using the full arsenal of modern linguistics, which includes language typology, areal linguistics, language acquisition and perhaps others.

From this it follows that a quantification of the etymological situation of the strong verbs is a clear desideratum, and would undoubtedly have strong implications for existing as well as future hypotheses. In addition, a re-investigation of the key characteristics of strong-verb morphology pointing out differences rather than similarities appears highly desirable. On the basis of these considerations, this study is organized as follows.

First, the goal of the morphological analysis is to show that the strong verbs of Germanic form a highly organized system whose elements are largely inherited, but whose organization differs typologically from the parent language and all other related languages. In addition, the various processes of heavy morphological regularization and peculiar semantic mergers that took place in the evolution of this system are examined. To this end, the first part of chapter two investigates the morphological position of ablaut and reduplication in Germanic as well as the Indo-European parent language, focusing on the question whether the property in question is a distinctive or a redundant feature, i.e. whether it can differentiate minimal pairs from a functional viewpoint or not. The reason for this is

that, according to the general opinion, it is the position of ablaut within the verbal system that is the central difference between Germanic on the one hand and its Indo-European relatives and the parent language on the other. Unfortunately, this notion has never been thoroughly analysed, which, however, is without doubt desirable in order to pinpoint what exactly the difference is.

In the second part of chapter two the strong verbs are presented as a highly organized system, whose mechanism is then explained in detail. Additionally, the well-known peculiarities, such as the lengthened grade in classes IV and V, are discussed and incorporated into the morphological analysis. The reduplicating verbs are also discussed as a group and further internal ordering principles of the presented system are suggested. chapter two concludes with an examination of peculiar irregularities of the strong verbs that in the past have caused problems for the reconstruction of the development of the strong verbs. These irregularities are viewed as traces of morphological and semantic differences that were largely levelled in a regulatory process. The conclusion drawn from this morphological analysis is that an organic development of the Germanic strong verbs is not the only plausible view and that the assumption of language contact is a conceivable option.

The second central part of this study is a quantitative etymological evaluation of the Germanic strong verbs carried out in chapter three. It provides an empirical database complementary to the morphological investigation. On the basis of the etymological handbooks, a transparent and detailed account of the etymological situation for this part of the Germanic lexicon is given. This includes a discussion of the conceptual approach of etymological investigations in general and the development of a methodological framework designed to evaluate etymologies quantitatively. Applying this quantitative method to the Germanic strong verbs, the exact amount of non-Indo-European material is determined on the basis of current data and evaluations. Comparisons with Ancient Greek and Sanskrit are carried out in order to underline the etymological peculiarity of the Germanic strong verbs. Chapter four summarizes the results of this study and presents the major conclusions, as well as some additional thoughts. This also includes recently suggested etymologies for Germanic strong verbs to demonstrate possible avenues of future research. The Appendices contain some data from the morphological investigation (Appendix A), the database of the quantitative analysis (Appendix B), as well as alternative quantitative evaluations based on different methodological considerations (Appendix C).

Chapter two

Systematized and functionalized ablaut:

The morphology of the Germanic strong verbs

This chapter first examines the principal morphological elements of the Germanic strong verb, i.e. ablaut and reduplication, from a systematic, comparative and diachronic point of view. The focus is on the typological position of ablaut in the morphology of the Germanic strong verbs in comparison to the verb system of the parent language. The second part presents the highly organized system of the Germanic strong verbs. In addition to the re-investigation of some well-known morphological problems, such as the lengthened grade in classes IV and V, this chapter explores the various processes of regularization and simplification that have rendered such a remarkable degree of uniformity to the system of the Germanic strong verbs.

1. The foundations of the system: Ablaut and reduplication

Ablaut and reduplication are the two morphological devices used in the stem formation of the Germanic strong verbs.²² In the history of the Germanic verb the significance of reduplication decreases as the dominance of ablaut grows. In this chapter the fundamentals of ablaut and reduplication are examined from a diachronic and typological point of view paving the way for the analysis of their status in Germanic.

1.1. Ablaut

1.1.1. *The nature and origin of ablaut in Indo-European*

The standard handbooks define *ablaut*, a term invented by Jacob Grimm (also *vowel gradation/alternation*, *apophony*), as the regular alternation of

22. See 1.3.2 below for a discussion of Germanic stem formation and the role of the inherited suffixes.

vowels in roots and affixes of etymologically and morphologically related words (see e.g. Birkhan 1985: 132). Ablaut as a phenomenon is not only found in Indo-European and its daughter languages, but also in other language families, most notably Semitic with its extensive and highly functional ablaut system. In fact, many handbooks and standard articles on morphology and language typology from past and present have used Semitic languages to illustrate ablaut (see e.g. Finck [1936] 1965 and Spencer 1998).

Commonly, two kinds of ablaut are distinguished, *quantitative* and *qualitative*, referring to vowel quantity and quality, respectively. Quantitative ablaut causes the ablauting vowel to appear either unaltered (full grade), lengthened (lengthened grade), or not at all (zero grade): FG: ⁺*sed-* (Gmc. ⁺*setja-*), LG: ⁺*sēd-* (L *sēdī*), ZG: ⁺*-sd-* (IE ⁺*ni-zd-os*, E *nest*). In addition, several authors have posited a reduced grade (e.g. Kuryłowicz 1956: 38; Harðarson 1993: 25 and Rasmussen 1995: 97–98). Kuryłowicz (1956: 38–40) claims that the reduced grade played a crucial role in the genesis of qualitative ablaut, but he (1956: 39) admits the unproven status of his considerations. It seems to be the problem of all hypotheses suggesting a reduced grade that its existence has not been ascertained, although it appears conceivable that it existed at some stage as a consequence of the absence of stress. Nonetheless, the reduced grade does not play any significant part in Indo-European morphonology; it therefore does not constitute a focal point in this study.

In the case of Indo-European the close connection between stress and the opposition of full vs. zero grade has long been recognized. For instance, Kuryłowicz (1956: 136) states: “L’alternance degré plein : degré zéro en fonction de l’accent est en même temps un trait essentiel de la morphologie indo-européenne”²³. There certainly exists a universal connection between vowel length and stress, particularly between vowel reduction and the absence of stress (see e.g. Vennemann 1991: 233–234 and Fulk 1986: 16–17). This is evidenced by the numerous cases of vowel reductions in unstressed syllables, for example in the Germanic languages. However, this is likely to have been a gradual process, as a characteristic of quantity languages is the independence of vowel quantity and stress. Conversely, the loss of this independence goes along with the elimination of vowel quantity as a distinctive feature, as e.g. in Modern Standard German (see e.g. Vennemann 1991, 1995; Becker 1998; Maas 1999; Primus 2003

23. ‘The alternation of full grade : zero grade according to accent is also an essential feature of IE morphology.’

and Restle 2003). Thus, as far as Indo-European is concerned, the reduction of vowels points to a period of a dynamic stress pattern (see also Fulk 1986: 16). This notwithstanding, the relationship between stress and quantitative ablaut works only one way. Reduced or zero grade chiefly results from the absence of stress, but it has to be emphasized that the absence of stress does not automatically cause vowel reduction in Indo-European, as full grade and also lengthened grade can occur in unstressed position.²⁴ This is clear from the fact that in polysyllabic words not all unstressed vowels are automatically reduced in Indo-European. Otherwise all Indo-European languages would have inherited a system that has an opposition of full stressed syllables vs. reduced unstressed syllables, but this is obviously not the case. Summing up, the absence of stress in early Indo-European caused vowel reduction leading to reduced (at least temporarily) and zero grade vowels (cf. also Szemerényi 1990: 166–167; Beekes 1995: 166; Laker 1997: 20; Tichy 2004: 39 and Meier-Brügger 2000: 142).

The origin of the lengthened grade is mostly attributed to morphological processes such as contractions (Szemerényi 1990: 124), expressive characterization (Kuryłowicz 1956: 146) or compensatory lengthening (Lehmann 1993: 130–131 and Birkhan 1985: 134). In the majority of cases the disappearance of a laryngeal probably caused lengthening of the preceding vowel (see Birkhan 1985: 134; Laker 1997: 23; Tichy 2004: 37 and Meier-Brügger 2000: 142). Nonetheless, the assumption by Kuryłowicz (1956: 142) that the lengthened grade in Indo-European did not have the significance it has in the attested languages is a sweeping claim that would have to be investigated in detail, as there are clear cases of apparent primary lengthened grades in so-called “acrostatic” formations, which seem to belong to the core inventory of Indo-European verbal morphology (see e.g. Tichy 2004: 76, 107–108).

According to the traditional view, qualitative ablaut (“Abtönung”) was caused somehow by accent (see e.g. Birkhan 1985: 132 and Braune 2004b:

24. Meier-Brügger (2000: 142) points out that there are rare cases of accented zero grades (IE ⁺*ul̥kʷ-o-* ‘wolf’). Kuryłowicz (1956: 137) had already acknowledged this fact and suggested that they are secondary, but does not specify their development. Rasmussen (1995) shows that sometimes accented zero grade is due to reductions of first syllables in compounds, i.e. that this is essentially a phenomenon of phonotactics. I agree, in principle reduction of vowels can have other reasons than the absence of stress but as a general rule this can be precluded for Indo-European. Tichy (2004: 39) formulates an early rule: unstressed *e* > ∅.

54). On account of this, Gamkrelidze and Ivanov (1995: 148) propose “o-vocalism as originally a variant of weak grade” (see also Beekes 1995: 166). Some authors have attempted a more precise explanation arguing that the musical accent of Indo-European was the reason for the “Abtönung” of full grade and lengthened grade vowels (see e.g. Lehmann 1993: 130–131). A contrasting opinion is the assumption of a morphonological origin of qualitative ablaut, as advanced by Kuryłowicz (1956: 37): “Les changements de timbre sont conditionnés d’abord par l’entourage phonétique, l’accent n’y jouant qu’un rôle tant au plus secondaire”.²⁵ Several authors have followed Kuryłowicz in this suggestion, in particular Szemerényi (1990: 126–127) and Meier-Brügger (2000: 142). Kuryłowicz (1956: 37–73) explains the basic change *e* > *o* in detail by positing the vocalization of assumed reduced vowels before sonorants, which was subsequently generalized and used morphologically to mark the perfect stem as well as certain deverbal nouns (see also Mańczak 1979 for a slightly different view).

According to the chronology proposed by Kuryłowicz (1956: 96), qualitative ablaut as a morphological feature evolved first, then quantitative ablaut was morphologized (cf. also Szemerényi 1990: 126–127). In contrast, e.g. Lehmann (1993: 131) and Fulk (1986: 16–17) have advanced a reversed chronology that is based on the assumption that the different kinds of accent (musical vs. dynamic) caused the different types of ablaut. The two proposed chronologies cannot be compared directly because Kuryłowicz refers to morphologically based ablaut and Lehmann and Fulk to phonologically conditioned ablaut. It seems plausible that the reduction of vowels in unstressed position was the first step. This is supported by Kuryłowicz’s analysis according to which the reduction of full vowels motivated the development of the *e* – *o* ablaut. The morphologization of the zero grade could in principle have happened before or after the establishment of qualitative ablaut. Yet, it is perhaps more convincing to suggest that it developed after the establishment of qualitative ablaut. In the beginning reduced vowels were just a consequence of the absence of stress and thus predictable. If Kuryłowicz’s proposed evolution of the qualitative ablaut is correct, then the morphologization of reduced vowels as an additional distinctive element is clearly motivated. A suggestion of the reverse chronology would have to explain the fact that zero grade ablaut is not extended significantly beyond its original environment, i.e. that its morphological use was still closely tied to its phonological origin. If Kuryłowicz’s

25. ‘The changes in the voice pitch are conditioned by the phonetic environment, with accent playing only a secondary role.’

chronology is adopted, however, zero grade vocalism just complimented the newly evolved qualitative ablaut, which is a more solid position than the assumption of an uncertain musical accent.²⁶

Thus, whatever the chronological development, both types of Indo-European ablaut, have phonological origins (cf. also van Coetsem 1990: 13). Quantitative ablaut is a consequence of vowel reduction in unstressed syllables; qualitative ablaut is most likely the result of a morphonologically conditioned sound change (see also the discussions in Laker 1997: 4–26 and Meier-Brügger 2000: 141–142).

1.1.2. Ablaut grades in Indo-European

The definition of ablaut given at the beginning of the previous section leads to two important questions concerning the investigation of ablaut in the verbal morphology of Indo-European: First, what are the different ablaut grades that alternate? Second, what are the rules behind these alternations? Both questions can only be answered indirectly, i.e. by means of either internal or comparative reconstruction via the attested daughter languages. It is evident that this poses a great problem for anyone investigating this matter. Consequently, there is considerable disagreement concerning the number of ablaut grades in the verb system of Indo-European and the rules for their distribution.

There is a general consensus that *e*- and *o*-full grade as well as zero grade ablaut belong to the primary set of Indo-European ablaut grades.

26. Although the idea that musical accent caused qualitative ablaut is difficult to disprove, it has found little support recently and appears to be the less probable alternative (e.g. Vennemann 1994: 183 fn. 29). However, as Szemerényi (1990: 81) points out, the rejection of a musical ablaut, largely based on Kuryłowicz (1956), has not found common acceptance (see also Beekes 1995: 154 and recently Rasmussen 2003, who posits a combination of dynamic and musical accent). After a discussion of the matter, Laker (1997: 14) concludes that “we can reject any theory which assumes pitch and stress accent to be at work in the language (i.e. Proto-Indo-European) simultaneously”, but nonetheless does not reject the possibility that musical accent played a role in the development of qualitative ablaut. Additionally, after a review of the arguments that have been advanced in the discussion of chronology, Laker (1997: 25) does not reach a conclusion. As the origin and the chronology of ablaut are of secondary importance for this study, this question can be left unanswered.

Beyond that, however, there is wide disagreement. The early Indo-Europeanist literature posits a rather diverse and complex variety of ablaut grades for the parent language including monophthongal and diphthongal variants (see e.g. Brugmann 1913a, b, 1916; Prokosch 1939; Kuryłowicz 1956 and the synopsis in Birkhan 1985: 133–134). Though it is clear that in the proposed diphthongal grades only the first element is subject to variation (the second element remains stable), i.e. $^+ei > ^+oi$, the assumed monophthongal ablaut grades were left largely unquestioned until the spread of the laryngeal theory. As Birkhan (1985: 134) remarks, this theory greatly simplifies and systematizes the diversity of ablaut grades since in particular lengthened grades and the *a*-full grade can be viewed as secondary, i.e. post-Indo-European. Laryngeals can cause a change in vowel quality, quantity, or both, e.g. IE $^+steh_2- > ^+stā-$ (L *stāre*).²⁷ Consequently, some authors have proposed that only the *e* – *o* – $\emptyset$ grades constitute the primary set of Indo-European ablaut, and that the other vocalic variants developed in post-Indo-European times (see e.g. Birkhan 1985: 134 and Gąsiorowski 1998). The problem with this position is that there are evident cases in which the laryngealist reduction technique does not work because a laryngeal that could influence the root vowel cannot be assumed for the relevant roots. A good and prominent example for this is the acrostatic present type discovered by Narten (1969); it has been largely accepted in the Indo-Europeanist literature (e.g. Harðarson 1993: 57–60; Kümmel 1998; Meier-Brügger 2000; Rix 2001; Jasanoff 2003 and Tichy 2004). Here the root in its strong stem exhibits $\bar{e}$ -grade without detectable influence of a laryngeal. Moreover, Jasanoff (2003: 31) tentatively argues in favour of the existence of “a small number of perfects with $\bar{o}$ -vocalism suggested by a small number of forms in Greek”. He claims that they correspond to Narten presents, but admits that the evidence is not substantial. Most authors, such as Meid (1971: 62), Mottausch (1996: 100) and Tichy (2004: 37), consider the $\bar{o}$ -grade as secondary.

Nonetheless, most contemporary textbooks add both $\bar{e}$ - and $\bar{o}$ -grade to the basic three grades, even though many authors remark that lengthened grades in most cases are secondary according to the laryngeal theory or some other compensatory lengthening (see e.g. Szemerényi 1990: 118–120;

27. The full effects of the laryngeal theory and the proposed vocalic changes can be found in any contemporary handbook or introductory textbook, such as Szemerényi (1990), Meier-Brügger (2000) and Tichy (2004). Birkhan (1985: 133–134) presents a summary of the different picture from a laryngealist point of view and contrasts it with the traditional theory.

Beekes 1995: 167; Kortlandt 1999: 1; Meier-Brügger 2000: 140–141 and Tichy 2004: 37). Rix (2001: 14–25) accepts primary $\bar{o}$ -grades for the verbal system (type 4b, although this is a secondary present formation) and mentions the Narten presents as examples of primary $\bar{e}$ -grade. In addition there is clear evidence of primary a -full grade in verbal roots. There are even (quasi-) minimal pairs, which are distinct through the quality of the vowel only, e.g. IE $^+mad-$ ‘be(come) wet’ vs. $^+med-$ ‘measure’²⁸, IE $^+H_{iag}$ - ‘worship’ vs. $^+H_{ieh_1}$ - ‘throw’, $^+ma\hat{g}$ - ‘smear’ vs. $^+re\hat{g}$ - ‘flow, drip’ (all taken from Rix 2001). As Rix (2001: 6) admits, a in these cases cannot be derived from a laryngeal and there is no other explanation available. This is also the view expressed by Jasanoff (2003: 31), who points out that the alternative, i.e. an *ad hoc* reconstruction of these problematic roots with a laryngeal, would be an unnecessary and unwarranted complication. In his classic book on Indo-European ablaut Kuryłowicz (1956: 187) counts 30 primary a -roots. Since a has to be accepted as a primary root vowel, there is the question of what a possible ablaut variant, e.g. in the perfect, would have looked like. Traditionally, authors have suggested $\bar{a}$ -grade (e.g. Hirt 1931 and Jasanoff 2003: 31), although Tichy (2004: 37) and Jasanoff (2003: 31) assert that this cannot be posited with certainty. Consequently, the general opinion on this issue seems to be that a -roots followed the standard ablaut pattern, e.g. o -grade in the perfect.

This discussion makes clear that, in order to reach more definitive conclusions, ablaut in the Indo-European parent language needs to be investigated further. For the purpose of this study, however, it is sufficient to assume a cautious position that assumes a total of seven possible primary ablaut grades (a , e , o , $\bar{a}$, $\bar{e}$, $\bar{o}$ and $\emptyset$). In particular, concerning the primary a -roots, I in principle agree with Rix (2001: 6) and Jasanoff (2003: 31) in maintaining that they have to be assumed until they can be explained otherwise. To sum up, although the laryngeal theory permits some simplification and systematization, by and large the ablaut grades proposed at the beginning of the 20th century still have to be assumed one hundred years later, at the beginning of the 21st century.

After this brief survey of the ablaut elements that are involved in the verb morphology of Indo-European, the next section examines how they

28. The original meaning of this root is difficult to ascertain, since the attested meanings are rather diverse. Kluge (2002, s.v. *messen*) glosses it with the denotation ‘gauge, estimate’, the full gloss given by Rix (2001 s.v. 1.**med-*) is ‘messen, für Einhaltung sorgen, kümmern’ (‘measure, control adherence, care’).

are employed. In particular, the notion of ablaut patterns, verbal paradigms and, finally, the morphological role of ablaut are explored. Although vocalic alternation is also found in suffixes, this study focuses on ablaut in verbal roots. The reason for this is that suffix ablaut is insignificant to the verbal stem formation of the Germanic strong verbs, which is the central subject of this study.

1.1.3. *Ablaut patterns and verbal stem formation in Indo-European*

Notwithstanding the vast amount of literature on this subject, a number of the diachronic details on Indo-European ablaut are not yet fully understood. This goes in particular for phenomena like the notorious *ablautentgleisung* and *schwebeablaut*.²⁹ Nonetheless, the basic rules for the alloca-

29. There are two phenomena of ablaut in Indo-European languages, the so-called “Schwebeablaut” (‘hovering ablaut’) and “Ablautentgleisung” (‘ablaut derailment’), which have often been used in etymological reconstructions. According to Rix (2001: 6) *schwebeablaut* is defined as the change of the ablauting vowel’s position in roots with a medial resonant, such as Umbr. ⁺*persk-* ‘ask’ vs. the Indo-European root ⁺*prek-*. Some authors (e.g. Kuryłowicz 1968: 221) have argued that this is due to metathesis of the ablauting vowel in related forms. In his extensive survey of the phenomenon Anttila (1969: 173) concludes that “schwebeablaut ... was clearly a morphophonemic submechanism in Proto-Indo-European” but he does not go as far as Kuryłowicz. However, as demonstrated by Rix (2001: 6), cases of proposed *schwebeablaut* are post Indo-European developments. The position of ablaut has a differentiating function, as in ⁺*ters-* ‘dry out’ vs. ⁺*tres-* ‘tremble’. This analysis is corroborated by the virtually unanimous notion that there is only one ablaut slot in Indo-European in contrast to, e.g. Semitic where there are two (see Kuryłowicz 1961: 20).

Any unusual changes within Indo-European ablaut patterns have been dubbed *ablautentgleisung*. The reason for this given by Birkhan (1985: 133) is that sometimes ablaut grades were re-analysed and consequently irregular ablaut grades evolved. According to Levickij (1998: 223–225) expansions or reductions of roots as well as analogy caused these anomalous ablaut grades. He argues that most cases of *ablautentgleisung* are actually derivations and even proposes a derivational system for Indo-European based on ablaut. This claim is weakened somewhat by the fact that the data used by Levickij (1998) is very often from Germanic. As it is well known, in its extremely extensive use of ablaut, Germanic is unique among the Indo-European languages.

tion of a particular ablaut grade to a verb form have been established. Even so, there still exist contrasting opinions on the position of ablaut in the verbal morphology of the Indo-European parent language. For example Watkins (2000: xviii) assumes a morphological function for ablaut. Moreover, various forms of systematic ablaut patterns, ablaut series etc., not unlike the well-known Germanic ablaut classes have also been proposed for Indo-European (see e.g. Brugmann 1972: 245; de Boer and Wisniewski 1984: 57 and Szemerényi 1990: 89–91). Even the classification of Indo-European verbs according to their ablaut has been advanced (Voyles 1992: 258). Furthermore, Indo-European ablaut has been compared to Semitic and similar forms of consonantal roots have been posited, at least for a proto-stage of the language (see Pooth 2001, 2003). What these attempts disregard, however, is the fact that Indo-European verb morphology works quite differently from both Semitic and Germanic. One of the central aims of the present study is to provide an account of this fact.

In order to understand the role of ablaut in Indo-European verb morphology it is necessary to examine the basic way verbal paradigms are constructed. According to the literature (e.g. Krahe 1967: 232; Hoffmann 1968: 296–297; Szemerényi 1990: 285–290; Meier-Brügger 2000: 153–166 and Tichy 2004: 82–130) a verbal root by virtue of its semantic denotation (i.e. its lexically determined meaning), automatically belongs to one of two aspectual poles.³⁰ The imperfective aspect (traditionally called *present*) refers to an atelic mode of action (*aktionsart*), whereas the perfective aspect (traditionally called *aorist*) denotes a telic mode of action.³¹ Both aspects are diametrically opposed to each other, i.e. a root usually can only belong to either pole. According to its basic aspect a verbal root generally forms its full temporal and modal paradigm using a pre-defined type of stem formation, traditionally called root present or root aorist (type 1a and 2a in Rix 2001).³² This means that there are basically two types of verbal

Therefore taking this as the original Indo-European system does not seem to be well motivated.

30. The “third” aspectual pole, the perfect, belongs to the imperfective aspect but is inherently perfective (see Tichy 1999: 129). Its formation is restricted by the basic aspect of the root and thus irrelevant for this simplified description.
31. The literature on verbal aspect is copious and the definitions mentioned are necessarily simplifications (see e.g. Comrie 1976; Dahl 1985; Bybee 1985; Leiss 1992; Hewson and Bubenik 1997).
32. It has to be noted, however that the paradigm of the aorist does not include a present tense. This paradigmatic gap has mostly been viewed as a natural limi-

roots in Indo-European, each with their basic aspectual paradigm.³³ Thus, a verbal root like IE $^+g^hem-$ ‘to go somewhere, to come’ has a telic mode of action, it belongs to the perfective aspect, and hence this particular root forms a root aorist.

However, one of the theoretical requirements for aspectual systems is that a verb does not express only one aspect. As Leiss (1992: 34) points out, the notion of aspect would then be quite superfluous. Hence verbs in Indo-European generally form a paradigm for the opposite aspect as well. To form aorist or present stems other than the root formations there exist several types of stem formation, each of which is a pre-defined template for the construction of a paradigm, determining the morphological properties that are used. In principle there are two kinds of stem formations, traditionally labelled *thematic* and *athematic*. Athematic formations do not add a suffix to the verbal root, but place the personal ending directly after the root. This type possesses two characteristic and distinct stems, traditionally called strong and weak, which generally exhibit different radical ablaut grades as well as a different pattern of accentuation. The athematic formation is illustrated by the root aorist mentioned above (type 2a in Rix 2001), with e.g. $^+g^hém-$ as the strong stem, used for the singular of the Indicative/Injunctive active and for the subjunctive, and $^+g^hm̐-$ as the weak stem used for the remaining categories. By contrast, thematic formations always add a characteristic suffix to the root and generally display no radical ablaut; instead the vowel of the suffix is subject to apophonic change. A typical thematic formation is represented by presents with full grade and *-e/o-* suffix (type 1n in Rix 2001), e.g. $^+b^hére/o-$, corresponding to the root $^+b^her-$ ‘carry, bear’.

As a result, in general a verbal root in Indo-European has at least two separate aspectual paradigms, each formed according to the rules of a different stem formation. Some roots also form a third paradigm, the perfect, which belongs to the imperfective aspect.³⁴ The perfect as a

tation of the perfective aspect (e.g. in Tichy 2004: 122). The specialist literature on aspect mentioned above has been critical of this and has generally rejected it, saying that present tense forms of the perfective aspect are in principle conceivable (cf. Dahl 1985: 82; Leiss 1992: 238 and in particular Kuryłowicz 1964: 104).

33. It is clear that this is an idealized view as in many cases root formations are not attested, mainly due to the general tendency to replace athematic formations with thematic ones.

which belongs to the imperfective aspect.³⁴ The perfect as a category is quite a complex phenomenon that will be looked at in more detail below. What matters here is that the perfect differs from the present and the aorist by the fact that for each root there seems to exist only one possible type of perfect stem formation per type of root.³⁵ By contrast, for the present stem Rix (2001: 14–20) lists a total of 20 possible stem formations, excluding roots with *a*-vocalism, and for the aorist three, all of which are equivalent in function (“funktionsgleich”, Rix 2001: 11), though he (p. 11) contends that this equivalence is secondary:

Es ist klar, dass diese Allomorphien sekundär entstanden sind, und dies, aus der Zahl der Allomorphe vor allem beim Präsens zu schließen, nicht allzu lange vor dem Ende der grundsprachlichen Periode [...]. Die Vermutung liegt nahe, daß dies bei der Ablösung eines reinen Aktionsartensystems durch die Einführung der Aspektopposition geschah, bei der einige Aktionsarten im perfektiven Aorist und viele Aktionsarten im imperfektiven Präsens zusammengefallen sind. ... Eine konsequente Untersuchung dieser Relationen könnte die Prototypen später generalisierter Suffixe bzw. Bildungsregeln ermitteln.³⁶

Nevertheless, the fact remains that at some stage in Indo-European a number of possibly competing formations existed for one aspectual pole with the rules governing their allocation being obscure (Meier-Brügger 2000: 163 and Ringe 2006: 151). For example, in the case of ⁺*g^uem-* thematic presents with different suffixes (*-skél/skól-*, *-jél/jól*, types 1p and q in Rix

34. In addition, there are stative formations, which however play no significant role in the simplified picture presented here.

35. Most current handbooks only list one possible stem formation in total for the perfect regardless of verbal root (e.g. Rix 2001: 21–22; Tichy 2004: 90–94 and Meier-Brügger 2000: 161). By contrast, Jasanoff (2003: 31), argues for at least two other formations corresponding to roots with a Narten present and *a*-roots. This study largely follows the general opinion, as the alternative suggestions seem insufficiently substantiated.

36. ‘It is clear that these allomorphs are due to a secondary development which, judging from the number of allomorphs, especially in the present, took place not very long before the end of the common-Indo-European period. It seems reasonable to suspect that this occurred when the introduction of an aspectual opposition came to supersede a system purely based on the mode of action, in the course of which some modes of action merged into the perfective aorist and many modes of action into the imperfective present. A consistent investigation of these relations could yield the prototypes of suffixes or formation rules which were later generalized.’

2001) are attested.³⁷ Meillet's (1964: 195) judgment that "En indo-européen ... chacun des termes verbaux était indépendant"³⁸, appears, in principle, to be correct: each type of stem formation has its own mini-paradigm representing one aspectual pole but the construction of a comprehensive paradigm for a verbal root, like e.g. in Latin, Germanic, Modern French or English, seems rather difficult for Indo-European because the type of stem formation used for the opposite aspectual pole appears to be rather arbitrary (see also Makaev 1964: 23 and Bammesberger 1986: 30).

1.1.4. *The position of ablaut in Indo-European verbal morphology*

The central question that is posed in this section is whether ablaut can be considered a distinctive morphological property, in the sense that it alone marks a grammatical category, or whether it is used redundantly. In order to answer this question an examination of the status of ablaut in the morphology of the Indo-European verb is carried out.

As mentioned above, the expression of grammatical categories is based on verbal stems that reflect the dimension of aspect. Hence, a verbal root usually forms a present stem and an aorist stem. In addition, some roots possess a perfect stem as well as secondary formations, such as intensive stems. These stems are formed according to complex morphological rules. They determine the combination of the morphological properties used in Indo-European verbal morphology, namely ablaut, affixation, reduplication and word stress, and are traditionally called *types of stem formation* (*G Stammbildungstypen*). Conversely, it is the combination of the morphological properties found in a verbal stem form that specifies the type of

37. Jasanoff (2003: 68) remarks that it is a "principle" that even the ablaut patterns of root formations is unpredictable. Moreover, he (2003: 215) argues against the pre-aspectual system of *Aktionsarten*. Similarly, Szemerényi (1990: 326) rejects a functional motivation for the various types of stem formations belonging to one aspectual pole saying that they occur with chronological differences, hence they were not all present at a given moment which makes a special functional motivation implausible. Rather, Szemerényi (1990: 326) posits that these secondary formations filled up the reservoir of presents (or aorists) that fell into disuse due to semantic change or semantic bleaching.

38. 'In Indo-European each verbal stem was independent' (see also Makaev 1964: 23).

stem formation, and rarely one such property by itself.³⁹ Specifically, ablaut alone never permits the unambiguous identification of a type of stem formation; it is rather a redundant property that is associated with of a particular type of stem formation (see also Szemerényi 1990: 97). This is apparent from the list of verbal stem formations given by Rix (2001) and Meier-Brügger (2000). For instance, if a form displays *e*-full grade it could be an aorist or a present stem, *o*-grade is found in the canonical stem of the perfect, the reduplicated present and the secondary intensive formation. Forms with *e*-lengthened grade can be Narten presents or sigmatic aorists.⁴⁰ From this it follows that if ablaut cannot distinctively differentiate types of stem formation across the aspectual boundary (in the sense that minimal pairs can be formed), then it does not express the category of aspect in the verbal system of the Indo-European parent language.⁴¹ Moreover, even if aspectual formations of only one category, i.e. present or aorist, are considered, ablaut by itself rarely serves to distinguish different types. The above-mentioned *ē*-grade, for example, within the category of aorist formations is characteristic of the sigmatic aorist. Of course, the fact that this is an aorist formation can only be inferred from the combination of ablaut, suffix and personal endings. However, *e*-grade or zero grade, for example, can be found in several present and aorist formations, and therefore they cannot be used for the precise identification of the stem formation within an aspectual category.

From this discussion of the morphological role of ablaut in the formation of verbal stems it follows that ablaut alone cannot directly express aspect. Let us now examine the position of ablaut within the paradigms of one type of stem formation, as this is the location in which the remaining grammatical categories of the Indo-European verb, namely diathesis, tense, mood, person and number, are marked. As mentioned above, athematic

39. Affixes often allow an unambiguous identification of the type of stem formation a given form belongs to.

40. The only stem that can unambiguously be identified on the basis of its ablaut is the causative-iterative formation with *-je/o-* suffix (type 4b in Rix 2001), which always exhibits *o*-lengthened grade. However, as this is a secondary type, according to the literature, with only twelve secure attestations (Rix 2001: 23), this is clearly of marginal significance and does not reflect the general picture.

41. Recall that the use of a particular type of stem formation with the exception of the root aorist/present and possibly the perfect (if the *communis opinio* is followed, which posits only one type of perfect formation) is not predictable.

formations differentiate a strong stem with full grade (*e* or *o*) from a weak stem with zero grade. However, one cannot overlook the fact that zero grades in these paradigms are always unstressed; this is how it originated in the first place (cf. 1.1.1 above). In athematic inflections the change of grade is always linked to stress, and hence, to the phonological environment rather than to the grammatical category.⁴² In addition, the distribution of the two stems is multifunctional, i.e. a stem does not unambiguously characterize a grammatical category: the strong stem is used to form the indicative/injunctive active and the subjunctive, whereas the weak stem is used for the remaining forms (see e.g. Bammesberger 1986: 21–22 and Tichy 2004: 105–107). Consequently, since ablaut in athematic formations cannot be used to refer back to one grammatical category, and since it does not differentiate minimal pairs, it cannot be seen as morphologically distinctive or as a means to express a grammatical category.

There are two exceptions to this. First, the Narten presents, which are athematic but have accented roots throughout the paradigm (see e.g. Rix 2001: 14 and Tichy 2004: 107–108). The strong (singular) stem, according to Kümmel (1998), was formed complementary to root aorists by change of the ablaut vowel and replacement of the secondary endings by primary endings. However, as pointed out by Rix (2001: 14), this type of present stem formation may go back to a variety of sources. The Narten presents exhibit a difference between singular (strong) and plural (weak) stem that is marked by quantitative ablaut, e.g. IE ⁺*stéu-*/⁺*stéu-*, and are thus clear examples for the morphologization of ablaut.⁴³ Nevertheless, note that there are comparatively few roots of this kind (no more than 52 roots of which 20 cases are uncertain, according to Rix 2001: 14), which supports a secondary origin. The prevalent present formations corresponding to root aorists used suffixes, as evidenced by the list of stem formations in Rix (2001: 14–25). The second exception is the sigmatic aorist (type 2b in Rix 2001). This type has the same distinction of strong vs. weak stem that is likewise marked by quantitative ablaut *-ē-/e-*. In both formations root ablaut alone marks a grammatical category on the verbal stem.⁴⁴ However, as

42. This is also valid for paradigms with nasal infix or suffix (types 1k–m in Rix 2001).

43. The same applies to the acrostatic presents with *o*-grade, the “*molō*-type”, a part of the Anatolian *hi*-conjugation reconstructed by Jasanoff (2003:66–72).

44. Some authors disagree with this reconstruction of the paradigm for the *s*-aorist positing no paradigmatic ablaut with either lengthened grade (Szemerényi 1990: 304–305) or full grade (Strunk 1985). Harðarson (1993: 95–96 fn. 12)

there are only two ablaut grades to mark tense, mood and number the distinctive power of ablaut is almost negligible. In other words, a given root with *e*-grade in a Narten present or a sigmatic aorist can signify any kind of plural, middle, subjunctive (in normal athematic paradigms expressed by the strong stem) or optative. This indicates that the morphological function of ablaut in athematic paradigms is very limited.

Thematic formations, by contrast, are characterized by a stable accent on the root or the suffix (acrostatic accent pattern) and do not display ablaut of the root vowel. Instead, the suffix usually exhibits ablaut.⁴⁵ The distribution of the two ablaut grades in the suffix follows a multifunctional pattern involving number: *e*-grade is found in the second and third person singular as well as the second person plural, whereas the *o*-grade is found in the first and third person plural, and can also be reconstructed for the first person singular (see. e.g. Bammesberger 1986: 22 and Tichy 2004: 56). Again, the distinctive power of ablaut is very limited, it is not characteristic of any grammatical category, and hence cannot be ascribed a morphological function.⁴⁶

The secondary importance of ablaut in Indo-European verb morphology is especially apparent once it is compared with the status of ablaut in Semitic, which, as mentioned in 1.1.1, is the prototypical ablauting language family (see Stempel 1999: 75). Kuryłowicz (1961: 13) points out the main difference between the use of ablaut in the two verbal systems:

Une différence majeure entre les deux familles concerne l'application de l'apophonie. En indo-européen elle est un phénomène de redondance morphologique d'un bout à l'autre, tandis que l'apophonie sémitique a souvent un caractère morphologique pertinent. En indo-européen c'est l'affixe ou la

discusses both opinions briefly, and rejects them. He instead assumes a paradigmatic ablaut with lengthened grade in the strong and full grade in the weak stem. This is supported by Meier-Brügger (2000: 161) and Tichy 2004: (125–126). It is indeed peculiar that both athematic formations with acrostatic accent pattern (*s*-aorist and Narten present) show paradigmatic ablaut without the usual accentual differentiation, since these are the only cases among all athematic formations where the ablaut is not tied to accent. Nonetheless, these two types of stem formation clearly constitute an exception to the general tendency of the development of ablaut in the verbal system of Indo-European.

45. The categories *Fientiv* and *Essiv* listed by Rix (2001: 25) are usually not included in the handbooks and need not be considered in this study. Moreover, they do not represent any new phenomena.

46. See also Rix (1976: 206) who notes that the distribution of suffixal *e* and *o* can be described but not explained.

désinence qui se charge de la valeur morphologique, en sémitique le degré vocalique en es souvent le seul porteur.⁴⁷

In Proto-Semitic, for example, the Stem I of the Perfective Active is always marked by *a*-grade in the first ablauting slot, e.g. Ar. *ḍarab-tu* 'I have hit, I hit (pret.)', and the Imperfective Active by zero grade, e.g. Ar. '*a-ḍrib-u* 'I hit', corresponding to the root Ar. *ḍrb* 'to hit' (cf. Versteegh 1997). This is completely independent of the remaining ways of stem formation. Here ablaut directly indicates the grammatical category. Within the perfective aspect, for example, there exist three possible stative formations, each with a different vowel in the second slot (*a, i, u*). However, the first slot is always occupied by the perfective (< adjectival) *a* (Lipiński 1997: 358). Due to the high morphological significance of ablaut, the familiar consonantal roots of Semitic have been formed as abstractions.⁴⁸ By contrast, for Indo-European this kind of radical abstraction does not make any sense because ablaut, as a rule, is not distinctive for grammatical categories. Moreover, the evidence for *a*-roots suggests that the nuclear vowel has to be considered an important element containing significant semantic information.⁴⁹ By contrast, in Semitic the slots between the consonants are filled by vocalic variants that express grammatical categories directly and therefore carry no lexical information (see e.g. Stempel 1999: 75).

From what has been said so far, it is evident that ablaut itself generally does not mark a verbal category in Indo-European. On the contrary, it is a derived property that is mostly used redundantly.⁵⁰ In particular, the com-

47. 'One major difference between the two families relates to the use in Indo-European it is entirely a phenomenon of morphological redundancy, whereas the Semitic apophony often has a pertinent morphological character. In Indo-European it is the affix or the ending which is charged with morphological value, which Semitic is often only carried by the vowel grade.'

48. Already Kuryłowicz (1961: 17) drew attention to the fact that the consonantal roots of Semitic may exist only in theory. However, recent research by Gafos (2003) clearly shows that consonantal patterns are of crucial psycholinguistic relevance to speakers of Semitic languages (see also Prunet 2006). By contrast, consonantal abstractions are pointless for Indo-European, due to the lexical significance of the root vowel and also because an ablaut grade virtually never expresses a grammatical function.

49. See also Kuryłowicz (1968: 206), where he argues explicitly against the proposition of one Indo-European verbal root vowel.

50. I agree in particular with Szemerényi (1990: 96) in saying the function of ablaut in the grammatical system of Indo-European is not to be overestimated. The remark by Tichy (2004: 39) that ablaut was only a morpho-

parison with Semitic makes it clear that in Indo-European ablaut occupies a relatively marginal position in verbal morphology. Thus, “gradation” is probably the best term to use for the vocalic alternations in Indo-European.⁵¹ Nevertheless, for reasons of consistency with the literature and for the sake of clarity I will continue using the term “ablaut” in the Indo-European context.

The last issue dealt with in this section is the question of productivity. Since ablaut is a derived property tied to stem formation rather than an independent and direct way of expressing grammatical categories, productivity is likely to have been indirect. This means that ablaut can only be called productive in Indo-European if there was a spread of stem formations with ablaut at some stage in the language’s development. That this is definitely the case is evidenced by the extension of ablaut patterns beyond the basic *e – o – ∅* pattern.⁵² The sigmatic aorist is an example for this development. However, there seems to be a strong tendency to level the ablaut within one aspectual stem. The older athematic formations have a strong and a weak stem which show different ablaut grades. On the contrary, thematic formations, which seem to spread from late Indo-European times onward (cf. e.g. Rix 2001: 12), always have only one radical ablaut grade throughout their paradigms. In these cases it is the suffix’s vowel that is subject to an even more unsystematic gradation. Since ablaut of the root vowel is not an independent property in Indo-European, and since non-ablauting stem formations begin to spread already in the Indo-European period, this might be an indication that ablaut had become “a recessive property” by the late Indo-European stage, as Vennemann (1998a: 41) avers.

logical rule – although potentially ambiguous – is in principle correct. One might add that this rule did not have any functional value. Laker (1997: 26–40) demonstrates the limited degree of systematic ablaut for Sanskrit and Greek.

51. I owe this to Eugen Hill (Munich, p.c.) who, recalling ancient grammarians, prefers the term “Stufenwechsel” (‘change of grade’). See also Mel’čuk (1976: 260), who points out that the use of one term for two or three different shapes of vocalic change is inadequate from a methodological point of view. Laker (1997: 1–6) and Meier-Brügger (2000: 141) compare Indo-European ablaut to Germanic umlaut.
52. See Rix (2001 14–25) for a list of Indo-European verbal stem formations. The effects of Indo-European ablaut were probably very complex at some stage, as e.g. Kuryłowicz (1956: 184) and Jasanoff (2003: 21 fn. 42) assume. However, this does not concern the basic point made here.

The main conclusion drawn from the discussion in this section is that ablaut originated as a result of phonological processes at some stage of early Indo-European. It was subsequently morphologized and then used as a concomitant of stem formation, i.e. as a dependent property. By the time Indo-European split up into its daughter languages ablaut had perhaps already ceased to be productive. In any case, stem formations showing ablaut seem to have been recessive. Most importantly however, ablaut was used redundantly in Indo-European verbal morphology. Specifically, the role of ablaut differs fundamentally from ablaut in Semitic languages, in which verbal ablaut plays a central role. In Semitic ablaut has a morphological function, namely the direct expression of grammatical categories, often as the only morphological device employed (cf. also Kuryłowicz 1961: 16). Hence, from a typological and cross-linguistic point of view, it would make sense to use separate terms for what presently is called “ablaut” in Semitic and Indo-European (as also suggested in Mel’čuk 1976: 281). As will become clear later on, it is important to look at ablaut from this functional and typological perspective because Germanic assumes an intermediate position between the typological poles constituted by Indo-European and Semitic.

1.2. Reduplication

Reduplication is one of the most primitive morphological operations employed in the languages of the world (cf. in particular the review of the relevant literature by Restle 2003: 199–129). Sapir (1921: 126) states that “nothing is more natural than the prevalence of reduplication, in other words, the repetition of all or part of the radical element”. Wiltshire and Marantz (2000: 557) define reduplication broadly as “a type of word formation ... in which the phonological form of an affix is determined in whole or in part by the phonological form of the base.” There are three basic types of reduplication, namely *total reduplication* (involving the whole root), *partial reduplication* (involving part of the root) and *inexact reduplication* (involving the use of non-root material in the reduplicative syllable). Typologically, reduplication does not necessarily possess an iconic meaning, such as repetition or intensification, as Wiltshire and Marantz (2000: 560–561) point out. Cross-linguistically, the use of reduplication is far more widespread than that of ablaut (see e.g. Haspelmath et al. 2005).

In the verbal system of Indo-European reduplication is used as a morphological device for the construction of stems.⁵³ Reduplication is found in primary present stem formations (types 1g–i in Rix 2001), the canonical perfect stem, (secondary) intensive presents (type 6a in Rix 2001) and in the reduplicated aorist (type 2c in Rix 2001). Although diachronically the literature attributes an original iterative function to the first two types (cf. Tichy 2004: 91 and 112), it is clear that this can no longer be assumed for the ‘classical’ period of Indo-European. This is because in both types of formation reduplication has no synchronic value. Reduplication in the intensive formation seems to denote repetition/intensification, and thus would largely be iconic. However, severe doubts have been expressed that this type existed in the parent language at all, as there seem to be only five ascertained cases. Moreover, this type of formation is productive in Indo-Iranian (see e.g. Rix 2001: 24), which also supports a post-Indo-European origin. Lastly, reduplicated aorists are sometimes seen as late-Indo-European iterative formations (cf. e.g. Rix 2001: 21). Tichy (2004: 129) even views reduplication in this formation as a means to express perfectivity and considers an iterative function as historical. Nonetheless, the often-quoted example, IE ⁺*é-ye-uk^w-e-t* ‘said’, does neither prove the original function assumed by Tichy nor the semantic value posited by Rix

From this discussion it follows that if its original function ever was iconic (denoting repetition) at an earlier stage, for the Indo-European period reduplication has to be viewed as largely non-iconic (see also Tichy 2004: 91). Morphologically, reduplication is used in conjunction with a number of other morphological devices in a redundant way, and does not express grammatical categories.

1.3. Reduplication and ablaut in the Germanic strong verbs

The Germanic strong verbs use ablaut and, to a lesser degree, reduplication in their stem formation. This section looks at the role of reduplication and ablaut in the morphology of the Germanic strong verbs. Fundamental differences to the Indo-European parent language are pointed out and discussed.

53. See any textbook of Indo-European on the various forms of reduplication (e.g. Szemerényi 1990: 287–290; Beekes 1995: 237).

1.3.1. *Reduplication in the Germanic strong verbs*

In contrast to the parent language, the Germanic strong verbs do not use reduplication in the formation of the stem of the present tense (cf. e.g. Meid 1971: 22).⁵⁴ Moreover, the aorist, for which a reduplicative formation is commonly reconstructed, does not constitute a morphological category in Germanic. Reduplication in the Germanic strong verb is only found in the preterit of the so-called reduplicating verbs, such as Goth. *haitan* : *haihait*. By contrast, the vast majority of strong verbs mark the preterit stem only with ablaut. Since the preterit of the ablauting verbs (classes I to VI) in the Germanic daughter languages show no trace of reduplication, it therefore has to be assumed that they were already unreduplicated in the Germanic parent language. On this account, the Germanic strong verbs are usually subdivided into ablauting and reduplicating verbs. Synchronically, the reduplicating verbs can be further separated into two formally distinct groups, those displaying ablaut as well as reduplication (the minority, cf. Goth. *lêtan* : *laîlôt*) and those that only use reduplication (the majority, cf. Goth. *haitan* : *haihait*). The question arising from this data is: does this distribution of reduplication and ablaut also have to be assumed for the morphological ancestor of the Germanic strong preterit, the Indo-European perfect (see e.g. Matzel 1970: 1; Meid 1971: 40; Bammesberger 1986: 47–49, 1994: 16), or is it an innovation, in which case this innovation would have to be explained. This problem has received considerable attention in the literature, and in essence three hypotheses have been advanced. First, it has been suggested that reduplication was a facultative feature of perfect formation in the parent language. Second, the absence of reduplication has been attributed to the influence of the aorist. Third, it has been proposed that originally all Germanic strong preterits were reduplicated, just like the perfect in the parent language, but that reduplication was given up due to a number of language-internal reasons.

The first opinion was expressed e.g. by Kuryłowicz (1964: 70) saying that “the old distribution between reduplication and the o-grade is more or less preserved in Italic, Celtic and Germanic.” This echoes Prokosch (1939: 187–188) and Kuryłowicz (1956: 312 fn. 26), both of whom attrib-

54. Meid (1971: 22) assumes that intensive reduplication like in Sanskrit was in principle possible in Germanic but not used because there were other ways of expression. This is rather speculative because it is a fact that the Germanic present does not show reduplication at all (see also Krahe 1967, II: 230–265; Bammesberger 1986: 32 and Mottausch 1996: 99).

ute the presence of reduplication to a semantic distinction in the parent language. Following this hypothesis, Meid (1971: 53) labels reduplication “eine von mehreren Sonderausstattungen des alten Perfekts” (‘one of several optional features’), and states (1971: 68-69):

Es ist jedenfalls nicht angebracht, den griechisch-arischen Perfekttypus, der Reduplikation und Ablaut vereinigt, zum indogermanischen Prototyp zu erheben und einerseits einen Verlust der Reduplikation bei den germanischen ablautenden Präterita, andererseits aber ihre Erhaltung in der reduplizierenden Klasse zu behaupten.⁵⁵

To Meid (1971: 53) the remaining forms of the strong preterit, i.e. formations with lengthened grade and reduplication only, represent later developments, a view also expressed by Kuryłowicz (1964: 71). By contrast, Meid (1971: 68) dismisses the Germanic preterit forms of the *laīlôt*-type as exceptional. The reason for this view is that Meid (1971: 68) claims that the distribution of ablaut and reduplication found in Germanic is more economical and thus more likely to represent the original state of affairs than the hypercharacterized Greco-Aryan perfect. Nevertheless, Meid (1971: 53 and also 1971: 128 fn. 70) concedes that in a number of cases the hypercharacterization of perfect forms has to be assumed already for the parent language and Pre-Germanic respectively (see already Hirt 1932: 142). However, in his opinion reduplication was given up in favour of ablaut precisely due to its redundancy, and also because it acquired the semantic value of a past tense, which is somewhat contradictory.

Another argument in favour of positing a non-reduplicated perfect in the Indo-European parent language that has been put forward in the literature is that there appears to be at least one widely attested perfect stem without reduplication, namely IE ⁺*uóid-* ‘know’, belonging to the root IE ⁺*ueid-* ‘see’. In his seminary work on the Germanic preterit Meid (1971: 20) underlines the significance of this point for the reconstruction of the perfect in Indo-European:

Wer der Meinung ist, daß die Reduplikation ein obligatorisches Bildungsmittel des Perfekts im Indogermanischen war, muß notgedrungen annehmen, **woida* habe schon in früher Zeit seine Reduplikation “verloren”. Wer dagegen der Meinung ist, daß das Perfekt im frühen Indogermanischen nicht

55. ‘At any rate it is not appropriate to stylize the Greco-Aryan perfect-type, which possesses both reduplication and ablaut, as the Indo-European perfect-type, and to posit a loss of reduplication in the Germanic ablauting preterits on the one hand and its retention in the reduplicating class.’

notwendigerweise redupliziert war, hat dagegen um so mehr Grund, **woida* für einen besonderen Archaismus anzusehen.⁵⁶

Thus, the central assumption of this view is that reduplication was a facultative element of the Indo-European perfect, and that a substantial number of ablauting strong verbs can be explained that way. Clearly, a discussion of this position involves the complex history of the Indo-European perfect, presenting a reconstructive challenge of its own. Moreover, it is also evident that the anomalous case of IE ⁺*uóid-* and its formations attested in the daughter languages has to be accounted for. The recent literature on the Indo-European perfect has generally considered reduplication as an obligatory element of perfect stem formation in the parent language; perfect forms without reduplication are either viewed as exceptional or as secondary developments in the daughter languages (see e.g. Rix 1976: 220; Szemerényi 1990: 314; Kümmel 1996: 9; Jasanoff 2003: 30; Mottausch 2003: 10 and Tichy 2004: 90–91). Bammesberger (1986: 48) summarizes this point of view:

Dabei sollte man vermutlich nicht von der Vorstellung ausgehen, daß die Reduplikation im indogermanischen Perfektparadigma fakultativ war. Soweit wir sehen können, hat das Perfekt immer Reduplikation, wobei die wenigen Ausnahmen wie etwa idg. **woid-a* eine eigene Erklärung erfordern.⁵⁷

As pointed out in the literature, the most substantial argument advanced in favour of a non-reduplicated perfect in the parent language is IE ⁺*uóid-* (see e.g. the quotation from Meid 1971 above and Jasanoff 2003: 228), which will be examined further below. By contrast, the non-reduplicated perfect forms attested in the daughter languages, e.g. the Latin *perfectum* with lengthened grade, cannot be taken as clear evidence, since a secondary development cannot be ruled out, as also Meid (1971: 54) admits. At any rate, it is clear that Meid's (1971: 68) argument that the hypercharacterized perfect stem with ablaut and reduplication is unlikely to represent the

56. 'Those who are of the opinion that reduplication was an obligatory property of the perfect in Indo-European is forced to assume that **woida* "lost" its reduplication at an early stage. By contrast, those who think that the perfect in early Indo-European was not necessarily reduplicated, have all the more reason to see in **woida* a specific kind of archaism.'

57. 'However, it should not be assumed that reduplication was facultative in the Indo-European perfect paradigm. As far as we can see, the perfect always has reduplication, with the few exceptions, such as IE **woid-a*, requiring an explanation of their own'.

original state of affairs because it is not economical, is not convincing. As far as the verbal system of the parent language is concerned, the hyper-characterization of a verbal stem is very common, as several types of stem formation combine ablaut, affixation and accent (cf. 1.1.2 and 1.1.3 above). Moreover, although hyper-characterization could perhaps be seen as “uneconomical”, cross-linguistically it is neither uncommon nor necessarily due to a development from an economically marked form.

There are two arguments in support of the view that perfect reduplication was not facultative, namely the evolution of the perfect in general and the comparative evidence in particular. According to the general opinion, the perfect in the parent language functionally denotes a state of the agent resulting from a completed action in the past performed by the same agent. In some cases this implied action can be seen as continuing into the referred state (see e.g. Tichy 1999, 2004: 90; Jasanoff 2003: 30 and also Kuryłowicz 1964: 61).⁵⁸ Thus, the primary function of the perfect seems to have been “resultative-stative”, as Jasanoff (2003: 215) expresses it. However, the development of the perfect into a more or less pure resultative with a preterital connotation is unanimously seen to have taken place only in the attested daughter languages. The literature considers the prehistory of the Indo-European perfect directly connected to the middle and the relic diathesis of the stative. Generally, the common origin of the Indo-European perfect, medium and stative is assumed, and attributed to some sort of nominal derivation. Accordingly, the perfect developed either from an earlier medial proto-form that Meid (1971: 38) calls “Medioperfekt” (see also Kuryłowicz 1964: 56–70, 1979: 146; Jasanoff 1979: 89–90, 2003: 219), or directly from the stative (“reduplizierter Stativ”), as Kümmel (1996: 9) proposes (cf. also Stempel 1995; Mottausch 2003: 10 and Tichy 2004: 91–93).⁵⁹ If the original function of reduplication really was to convey repetition (cf. 1.2), then in the case of the perfect it could have expressed a prolonged state at an earlier stage (cf. also Cowgill 1979: 35; Tichy 2004: 91 and Mottausch 2003: 9–10). However, it is clear that this is rather speculative, as neither the exact history of the perfect nor the original function of reduplication have been ascertained. Nonetheless, the strongest argument

58. As Meid (1971: 33–34) argues, these two different denotations of the Indo-European perfect may be due to the inherent verbal aspect of the relevant root. Accordingly, perfective roots formed resultative-stative perfects, whereas imperfective roots formed intensive perfects.

59. It has to be noted, however, that these two approaches differ only marginally from each other (see also below).

for assuming obligatory reduplication is the comparative evidence, as also Jasanoff (2003: 228) points out. To sum up, the discussion so far makes clear that the ancestral form of the Germanic preterit, the Indo-European perfect, displayed regular ablaut and reduplication, which necessitates an explanation for the distribution of these two morphological properties attested in the Germanic strong verb. The null hypothesis, thus, should be that the non-reduplicated preterit forms represent an innovation, rather than a speculative archaic stage that cannot be specified exactly.⁶⁰

However, it is apparent that this view requires an explanation for the attestations belonging to the root IE ⁺*uejd-* ‘see’ which, according to the *communis opinio*, are interpreted as reflexes of a non-reduplicated perfect ⁺*uójd-* ‘know’ in the parent language. To be sure, from a purely Germanic point of view, this is less problematic than it seems because the verb belongs to the preterit-presents. As these verbs synchronically pattern as presents, the lack of reduplication could simply be attributed to the general loss of present reduplication in Germanic. In other words, even if the ancestral form of Gmc. ⁺*wait-* had been a reduplicated perfect, it may have lost the reduplicative when it assumed the value of a present. In fact, also in those related languages in which reflexes of IE ⁺*uójd-* are attested (cf. Rix 2001: 665–666), the meaning ‘know’ can be seen as denoting a present rather than a perfect meaning (see also Jasanoff 2003: 228). After all, the root means ‘see’, and ‘know’ can easily be connected to a perfective use of ‘see’. Synchronically, the attestations of IE ⁺*uójd-* are reminiscent of the preterit-presents in the Germanic languages, i.e. non-reduplicated perfect forms with a present meaning that diverge from that of the basic root. However, while being fairly unproblematic from a Germanic point of view, an interpretation of IE ⁺*uójd-* as an early perfect (i.e. preterit) present seems problematic for languages which normally retain present reduplication, such as Old Avestan (*vaēdā* ‘knows’, perfect vs. *dadāitī* ‘places, gives’, athematic present) because there is no immediate reason for the loss of reduplication.

60. This is in disagreement with Meid (1971: 52), who labels this null hypothesis a *petitio principii*. However, to assume that the Germanic non-reduplicated preterits represent archaic perfect formations means that the regular ones, i.e. reduplicated perfect forms attested earlier in related languages, are innovations. Clearly, this position neither explains the distribution of ablaut and reduplication in the Germanic strong verb (recall that there are verbs showing both), nor is it based on any substantial evidence, and consequently it has to be rejected.

Jasanoff (2003: 228) summarizes the existing hypothesis on IE $^{+}\mu\acute{o}id-$: “Opinions differ as to whether the lack of reduplication in $^{+}\mu\acute{o}id-$ / $^{+}\mu id-$ was a secondary, inner-IE development or an original feature.” In view of the fact that IE $^{+}\mu\acute{o}id-$ seems to be the only formation that is commonly reconstructed as going back to a non-reduplicated perfect combined with the prehistory of the perfect, the assumption of an archaism that can neither be clearly specified nor satisfactorily explained seems even more speculative than the position of an early loss of reduplication. In addition, the latter view gains some support by the fact that the reflexes of a non-reduplicated IE $^{+}\mu\acute{o}id-$ attested among the Indo-European languages are semantically divergent from the basic meaning of the root IE $^{+}\mu e\acute{i}d-$ ‘see’, having developed the denotation ‘know’. As a result, it seems preferable to assume that IE $^{+}\mu\acute{o}id-$ was once a regular perfect but lost its reduplication at an early stage.⁶¹ Furthermore, as all attestations of IE $^{+}\mu\acute{o}id-$ show a divergent meaning to what is expected for the perfect of IE $^{+}\mu e\acute{i}d-$ ‘see’, namely ‘know’, it is doubtful that Meid’s putative non-reduplicated pre-Germanic perfect forms still had a transparent perfect meaning that could develop into a proper past tense at a time when the only supporting example, IE $^{+}\mu\acute{o}id-$, had already undergone a significant semantic shift towards the present rather than the past tense. In other words, the semantics of Gmc. $^{+}wait-$ ‘know’ is clearly distinct from e.g. the preterit $^{+}bar-$ ‘carried’ despite the morphological identity, i.e. perfect endings and o-grade. To sum up, this discussion has shown that the lack of reduplication in classes I to VI of the Germanic strong verbs cannot be explained via the assumption that reduplication was a facultative element in the parent language.

The second hypothesis, namely that the missing reduplication in the Germanic strong preterit is due to the influence of the aorist, has been advanced by a number of authors (see e.g. Prokosch 1939: 162–164; Bammesberger 1986: 49; Lehnert 1990: 103; Hewson 1997: 213–225 and Mottausch 2000: 52). According to this view, perfect and aorist merged at a Pre-Germanic stage, which is seen as the reason behind the lack of reduplication, the 2nd person singular ending of the West Germanic strong preterit, and the preterit plural of the Germanic strong preterit. However, there are several serious problems attached to this position. First of all, the as-

61. Jasanoff (2003: 228–233) discusses the case of IE $^{+}\mu\acute{o}id-$ and interprets it (p. 233) as an “inner-IE neologism – a back formation of its own middle, which in origin was not a perfect at all but a root stative-intransitive present.” See also Winter (1993), arguing for a loss of the reduplicative under a somewhat different framework concerning the stem formation of the perfect.

sumption that the syncretism of perfect and aorist caused the loss of reduplication does not explain the distribution of ablaut and reduplication in the Germanic strong preterit. It is clearly *ad hoc* to propose that in classes I to VI the suggested merger led to non-reduplicated preterits. It then seems unclear why the reduplicating verbs retained reduplication because this would suggest that the proposed merger either did not cause a loss of reduplication among the reduplicating verbs or that it never took place in this group. In addition, reasons would have to be found for the co-existence of ablaut and reduplication in verbs such as Goth. *lêtan* : *laílôt* 'let'. Moreover, as reduplicated aorists have to be posited, at least for a late stage of the parent language, it cannot be ascertained that an influence of the aorist necessarily led to non-reduplicated Germanic strong preterit forms. In addition, the claim that the preterit endings mentioned above show traces of the aorist cannot be substantiated, as several authors have demonstrated. The endings of the preterit plural do not unambiguously point to the secondary endings of the root aorist as e.g. Prokosch (1939: 215–216) suggests, but they more likely reflect the secondary endings of the Indo-European perfect (perfect injunctive), as Tichy (2004: 92) argues. Even the 2nd person singular of the West Germanic preterit probably does not go back to an aorist.⁶² Consequently, the hypothesis that the Germanic preterit was formed under substantial influence of the aorist, accounting in particular for the loss of reduplication, cannot be substantiated.

Following the line of argumentation so far, it has to be assumed that originally all Pre-Germanic preterits were reduplicated and that any influence of the aorist in the subsequent loss of the reduplicative in the majority of the Germanic strong preterits can be ruled out. This is the starting point

62. Kortlandt (1994a: 1) convincingly argues against the 2nd person singular preterit being a trace of the aorist as no clear motivation or method is detectable. North and East Germanic point to the normal perfect endings (IE⁺-th₂e), for West-Germanic the position of a thematic secondary ending (e.g. Brunner 1965: 279), IE ⁺-es > Gmc. ⁺-iz from the aorist is *ad hoc*. It seems just as probable that the 2nd person singular in the preterit was taken from the preterit subjunctive (same ablaut grade). Moreover, a comparison with Latin shows that a merger of aorist and perfect would have left clear marks (see e.g. Narten 1973). In addition, as Bammesberger (1986: 95–96) points out, the fact that the preterit-presents and the North and East Germanic preterits show the regular perfect endings clearly demonstrates that the development of the new 2nd pl. preterit in the West Germanic preterit is an innovation. Since, by that time the aorist had disappeared it seems problematic to argue for an aoristic source for this late innovation in West Germanic.

of the third hypothesis, namely that reduplication was given up because it was redundant, given that the stem of the preterit was sufficiently marked by ablaut (see e.g. Hirt 1932: 142; Meid 1971: 53; Ramat 1981: 61 and Mottausch 1998: 45). However, this does not necessarily imply a teleological bias towards ablaut as assumed by Meid (1971: 60–61). Rather, as Vennemann (1994: 182 fn. 27) notes, it is more a principle of morphology that favours the clear marking of categorical differences and paradigm uniformity (see also Mottausch 2000: 52 “Sprachökonomie”). According to this hypothesis, those verbs that did not give up reduplication did not really have a choice as their root structure did not allow a preterit formation with ablaut for phonotactic reasons (see also van der Rhee 1973: 18).⁶³ In addition, Meid (1971: 128, fn. 70), Bammesberger (1986: 48–49), Vennemann (1997: 332 fn. 28) and others have argued that the effects of Verner’s Law in conjunction with Grimm’s Law would have caused peculiar onsets of roots in a number of verbs, e.g. **swemma-* : **sezwamm-* ‘swim’, which greatly obscured the phonological identity of the root and thus endangered the uniformity of the paradigm. According to Bammesberger (1986: 49), the loss of reduplication may have occurred when the voiceless Verner variants were restored in the affected words (see also Vennemann 1997: 332 fn. 28). Thus, it is usually assumed that reduplication was given up wherever possible, i.e. in verbs that formed regular ablauting preterits because it was perceived as redundant, and also because, at least in some cases, the effect of Verner’s Law distorted the radical onsets in reduplicated forms.

Nevertheless, this analysis runs into several problems. First, the existence of reduplicating verbs exhibiting ablaut, such as Goth. *lêtan* : *laîlôt* ‘let’, is a weighty counter-argument against the traditional view that the redundancy of reduplication motivated its elimination. Second, hyper-

63. As Meid (1971: 68) puts it: “Notlösung” (‘emergency solution’). His assumption that reduplication was a re-invention in Germanic because the reduplicated verbs were derived verbs, however, is untenable. Firstly, not all verbs are derived verbs (see the detailed investigation in 3.3 below). Secondly, as Jay Jasanoff (Harvard, p.c.), Eugen Hill (Munich, p.c.) and others have pointed out, from a diachronic point of view, the Germanic ablauting-reduplicating verbs are identical with Indo-European perfects, therefore a re-invention is unnecessary. Nonetheless, as Bammesberger (1986: 64) notes, and as will become clear in chapter three (see also Appendix B), among the reduplicating verbs there are a number without good Indo-European etymologies. In these cases reduplication probably is secondary due to analogy (cf. 4.2.3)

characterization is common and does not necessarily have to entail simplification in principle. Although it is certainly correct that categories are preferably marked clearly and unambiguously with a minimum of morphological properties, this does not automatically imply that a situation in which one grammatical category is expressed by two or even more properties is inherently unstable. There are numerous instances of double marking of one grammatical category. For example the plural in Modern Standard German can be marked with both umlaut and ending at the same time, e.g. *Männer* ‘men’, *Wände* ‘walls’. However, Modern Standard German uses several other means to form nominal plurals, such as different suffixes (e.g. *-en* in *Frauen* ‘women’) or even entirely unmarked plurals (*Computer*, *Kater* ‘male cat’, etc.). After over two millennia the past tense is still marked by essentially the same vocalic change or suffixation, as demonstrated by *lesen* – *las* ‘read’, *spielen* – *spielte* ‘play’. Moreover, a language can preserve irregularities for a very long time as the opposition of *E was* vs. *were* (effect of Verner’s Law) shows. This is especially common in highly frequent words (see Werner 1984: 214 and Bybee 2003: 1). Thus, it is clear that the redundancy of reduplication alone cannot convincingly account for its total elimination in the classes I to VI, as also Bammesberger (1986: 59) notes.

Third, the argument advanced by several authors that the effects of Verner’s Law were directly involved in the loss of reduplication needs to be examined more closely. Vennemann (1997: 332 fn. 28) says “that the reason for the abandonment of reduplication in the verbs of classes I–VI was the obfuscating effect of Verner’s Law on the preterit forms.” Realizing that this would have affected only a part of the verbs in classes I to VI, and that for the remaining non-Verner verbs an analogical development would have to be assumed, Bammesberger (1986: 48–49) is hesitant to attribute too much weight to this process, but views it as a motivating factor behind the loss of reduplication nonetheless.⁶⁴ The ancestral forms of

64. In fact Bammesberger’s own proposal differs slightly from those referred to in the main text. He (1986: 49) thinks it is conceivable that the reduplicative was lost when the root-initial consonant affected by Verner’s Law was restored (“daß bei Restituierung des Wurzelanlauts ... die Reduplikationssilbe abfiel.”). However, this cannot be accepted as an explanation either, as the loss of reduplication is left completely unmotivated. Furthermore, the fact that Gothic regularly levelled Verner’s Law in the strong preterit without eliminating reduplication even in the group of ablauting-reduplicating verbs is a clear counter-example to Bammesberger’s suggestion.

the Germanic strong preterit were affected by Verner's law and Grimm's Law, creating a contrast of ⁺/f, þ, h, h^w/ vs. ⁺/b̥, d̥, ɡ̥, ɡ̥^w, z̥/ (lenis stops):⁶⁵

- (1) Effect of Verner's Law on the ancestral forms of the strong preterit
- a. ⁺⁺*fénþ-* : ⁺⁺*feþánþ-* Gmc. ⁺*fenþa-* 'find'
 - b. ⁺⁺*héuf-* : ⁺⁺*heǵáuf-* Gmc. ⁺*heufa-* 'wail'
 - c. ⁺⁺*séih^w-* : ⁺⁺*sezáih^w-* Gmc. ⁺*seihwa-* 'sieve'

Vennemann (1997: 329) describes the development:

When Verner's change befell Germanic, the perfect forms of all seven strong verb classes were affected. At this stage reduplication was given up in all verbs where the tenses were marked by ablaut, i.e., in classes I – VI, and the phonetic root onset differences were leveled in favor of the present tense. Reduplication only survived in class VII, and so did Verner's alternations in the root onsets.

Consequently, the elimination of the reduplicative acts as a remedy to the threat Verner's Law posed to paradigm uniformity, since this automatically restored the voiceless Verner variant in line with the preterit singular and the present stem. According to this approach, the reduplicative was perceived as expendable because, as Vennemann (1997: 329) puts it, "the tenses were marked by ablaut". The group of reduplicating verbs retained the reduplicative because their preterit did not exhibit ablaut (Vennemann 1994: 182 fn. 27).⁶⁶ Consequently they had to live with the effect of Verner's Law. This process must have taken place before the accent shift because otherwise one would expect the effect of Verner's Law on the root initial consonant just like it is attested for the root-final consonant (cf. also Vennemann 1994: 183 fn. 29).

65. As Vennemann (2006) argues, Grimm's Law changes the Indo-European mediae aspirate into Germanic lenis plosives rather than into voiced fricatives. The main argument in favour of this reconstruction is that it avoids the typologically problematic change from Germanic voiced fricatives to voiced stops (e.g. ⁺[β] > [b], [ɣ] > [g]) in several Germanic daughter languages proposed by the traditional account (see Vennemann 1984b: 8 and 2006: 131 fn. 4 and 5).

66. These verbs have heavy bases for which only lengthened grade ablaut would have been possible. This would have meant an additional mora on an already heavy syllable, which is clearly disfavoured under the phonological system of Indo-European and also against universals of syllable structure (e.g. Vennemann 1988), especially the Weight Law (Prokosch's Law) in Vennemann (1988: 30–32).

However, there is a clear counter-argument against this position, and this is the attested existence of one verb showing ablaut, reduplication and the effect of Verner's Law on the root-initial consonant of the preterit stem. This is Gmc. ⁺*sē₁a-* 'sow', for which the reconstruction as a regular preterit with ablaut and reduplication can safely be posited from Goth. *saísô* (< IE ⁺*sesoh₁-*), and the effect of Verner's Law is evidenced by ON *sera* (< pre-Gmc. ⁺*sezō-*). There are in fact three more Germanic *ē₁*-verbs whose root-initial consonants would have been subject to Verner's Law, namely ⁺*slē₁pa-* 'sleep', ⁺*stē₁-* 'stand' and ⁺*prē₁a-* 'turn'. Of these ⁺*slē₁pa-* does not possess an accepted Indo-European etymology (cf. Appendix B), and moreover it is attested without ablaut in Gothic (*saíslêp*). The present stem formation for Gmc. ⁺*stē₁-*, according to Rix (2001: 590–591), is a replacement of an original perfect, but it is unknown what a secondary preterit formation in Germanic would have looked like because there is no reduplicated preterit attested in the Germanic daughter languages. Finally, although the original present stem formation of ⁺*prē₁a-* and the exact etymological facts are uncertain, there is a regular West-Germanic preterit attested, OE *ðrēow*, permitting the inference of a Germanic preterit, which, if inherited, would almost certainly show the effect of Verner's Law on the root-initial consonant.

Thus, among all Germanic *ē₁*-verbs there are only three cases whose root-initial consonants were subject to Verner's Law, and whose preterits (probably) showed ablaut. Note, however, that this combination can only be ascertained for the preterit of Gmc. ⁺*sē₁a-* through Goth. *saísô* and ON *sera*. Consequently, it could be argued that, although the majority of Germanic *ē₁*-verbs had the possibility of giving up reduplication, they had no immediate reason to do so, as they were unaffected by Verner's Law. The few exceptional cases (recall that there is only one certain case) may not have been numerous enough to trigger a general loss of reduplication within this group, as Vennemann (1994: 182 fn. 27) proposes.⁶⁷ Nevertheless, it is obvious that this is not an ideal solution; Goth. *saian* : *saísô* remains a peculiar case casting serious doubts on an explanation based on the effect of Verner's Law (see Hill 2004 for a general discussion of Germanic *ē₁*-verbs).

67. In the view of Theo Vennemann (Munich, p.c.) the alternation between /s/ and /z/ is the least problematic of all Verner cases. Despite having levelled Verner's Law, Gothic still has traces of voiced Verner variants such as *saízlêp*.

As a result of this discussion, it can be noted that the fact that the preterits in classes I to VI do not show reduplication has not been convincingly accounted for. Of the three hypotheses discussed here, the first two are based on unsubstantiated assumptions. Moreover, it also seems doubtful that the effect of Verner's Law provided a reason for the loss of reduplication. Furthermore, the contention that it was the redundancy of reduplication that motivated its elimination cannot be considered a sufficient explanation.

To sum up this section, reduplication in Germanic verbal morphology is only used to mark the preterit in a small minority of strong verbs, where it possesses a clear and significant morphological function. In contrast to the parent language, Germanic does not possess reduplication as a device for forming present stems. In the preterit, ablaut and reduplication are employed more or less complementarily. However, the reduplicating-ablauting verbs indicate that the presence of ablaut probably was not the reason why the reduplicating verbs retained reduplication. In addition, in particular the Gothic and Old Norse attestations of the preterit belonging to Gmc. ⁺*sē_ia-* 'sow' argue against the hypothesis that the effect of Verner's Law caused the loss of the reduplicative syllable. Thus, from the discussion in this section it has become clear that the reasons for the distribution of ablaut and reduplication in the Germanic strong verb system are still obscure.

1.3.2. Ablaut in the Germanic strong verbs

As demonstrated in the preceding section, reduplication is found only in the preterit of a small minority of the Germanic strong verbs. This suggests that, from a diachronic point of view, its position was weakened in comparison to the parent language, in which reduplication was an obligatory property of the perfect. By contrast, the position of ablaut was strengthened considerably when it was systematized and functionalized, becoming the foundation of the stem formation of the strong verbs (see e.g. Birkhan 1985: 139 and Szemerényi 1990: 89). Just like Indo-European, Germanic combines quantitative and qualitative ablaut in one paradigm. The five basic Indo-European ablaut grades are also found in Germanic, with the *e* – *o* – $\emptyset$ alternation being the backbone of the system. In some paradigms minor variations occur, which will be discussed further below. In addition to this fundamental ablaut pattern, the alternation of *a* and $\bar{o}$ is the characteristic property of a separate ablaut series, traditionally called class VI. As noted above, the reduplicating verbs, with the exceptions

noted above, the reduplicating verbs, with the exceptions mentioned, do not display ablaut. The ablaut-like alternation found in most Germanic languages will be returned to in section 3.3.

Most authors have commented on the high degree of organization the strong verbs attained through the systematization of ablaut (cf. the sample quotations in chapter one). However, the specific way in which this system differs from Indo-European, and exactly how it works, are still debated topics involving a great deal of sketchy and disparate understanding. There are essentially two opposing opinions. First, there are authors who acknowledge the importance of ablaut for the Germanic verbal system, but they do not see a typological difference to the parent language. This is partly due to a misconception of Indo-European ablaut. Voyles (1992: 65), for example, notes that the form of Germanic ablaut has changed due to sound changes, but essentially it is still a “morphosyntactically conditioned alternation”. He even posits ablaut series linked to root structure for Indo-European (Voyles 1992: 258). Krahe (1967: 230) claims that stem formation in Germanic, like Indo-European, is based on suffixation. Kuryłowicz (1956: 213) views the system of strong verbs as archaic.

Second, authors such as Hinderling (1967: 10–25), Barnes and Esau (1973), Birkhan (1985: 139), Szemerényi (1990: 89), van Coetsem (1990: 13) and Hewson (1997: 216) notice a unique extension of ablaut in Germanic (cf. also the quotations in chapter one), albeit without going any further. Hence, this general notion remains obscure because the exact status of ablaut is not sufficiently conceptualized. In particular, it is unclear in what way the systematization and functionalization of ablaut in Germanic affects its typological position.

As noted in 1.1.3, Indo-European expresses grammatical categories by complex morphological rules, the so-called types of stem formation. These largely work with affixes and, to a lesser degree, accent (Rix 1976: 197). Ablaut, at least in late Indo-European, is largely a non-productive morphological rule and it is a concomitant of the individual verbal formation. The paradigm of an Indo-European root is mainly lexically determined. This means that the inherent verbal aspect has a decisive influence on verbal stem formation. By contrast, the system of strong verbs in Germanic works exclusively on the basis of a verb’s root structure. There is only one exception to this, namely the so-called preterit-presents, which cannot always be identified by their root structure, as their inflectional pattern is an inherent lexical property. However, within this small subgroup stem formation is based on root structure. The bulk of strong verbs are ablauting with only a small minority being also marked by reduplication.

Before this investigation can continue, however, the term *stem* in Germanic needs to be differentiated from *stem* in the parent language. Indo-European stems are defined as root (lexical meaning) plus stem-forming suffixes, but excluding the personal ending (see e.g. Tichy 2004: 50). From the viewpoint of a system that possesses suffixed and non-suffixed stem formations this definition makes perfect sense. However, diachronically, virtually all of the Germanic strong verbs belong to the thematic conjugation, which renders the distinction of suffixed stems from non-suffixed stems pointless. Consequently, the inherited thematic suffix, which in the majority of cases is the so-called *thematic vowel*, synchronically is to be viewed as part of the personal ending. This means that strong verbs with the historical suffix Gmc. $^{+}(e)j^{e}/a-$, e.g. $^{+}bedja-$ ‘demand’, display slightly different personal endings from historical simple thematic formations (e.g. $^{+}ber-a-$ ‘carry’), namely $^{+}bed-j\bar{o}-$ vs. $^{+}ber-\bar{o}-$. But since this is a simple case of historically determined allomorphy, this is unproblematic.⁶⁸ Thus, the term *stem* largely refers to the same unit as *root* in the parent language. Nevertheless, the two terms can also be used in Germanic: *root* in this study specifically makes reference to the stem of the lexical base, i.e. the present stem, as opposed to the generic term *stem* which denotes any of the so-called stem forms mentioned below, i.e. the stem of the preterit singular, the past participle, and so forth.

It is well known that the nuclear vowel of a strong verb is subject to regular alternations that are characteristic for a grammatical category, e.g. tense and number, and that are determined by the phonological root structure on the present stem. Therefore, the paradigm of any ablauting verb can be characterized by four so-called *stem forms* that constitute the basis of the individual verb forms. These stem forms are preset according to the verb’s root structure and can be identified by their characteristic ablaut grade. Consequently, the ablauting verbs can be grouped into the well-known ablaut classes (I to VI). Thus, every class has a pre-defined ablaut

68. To be sure, the view that *j-* in this and other cases with a *-jan-* suffix has to be seen as part of the verbal stem is problematic because the suffix is attested neither in the preterit (e.g. OHG *bat*, *sat*) nor in the participle. Moreover, derivations do not display *-j-* either (e.g. OHG *betōn* ‘pray’). In verbs displaying a rarer suffix, such as $^{+}sk^{e}/a-$, the suffix may indeed have been perceived as part of the verbal root, e.g. OHG *wuosk* ‘washed’. However, none of the putative strong verbs with a *-sk-* suffix has a clear etymology permitting the reconstruction of its stem formation. Therefore this consideration is rather speculative.

pattern as well as a present stem with a characteristic root structure. Originally there were only two basic ablaut patterns, one for verbs with *a* as the present stem vowel and one for verbs with *e* (see also van Coetsem 1990). From what has just been said, it becomes clear that ablaut is greatly systematized in the Germanic strong verbs, which accounts for the high degree of organization and homogeneity found in the system. This process of systematization also involved heavy regularization of the inherited stem formations. For example, from an Indo-European point of view, all ablauting verbs are thematic formations even though historically some of them had been athematic, as evidenced by related languages (e.g. Gmc. **et-a-* 'eat' vs. OI *ád-mi* 'I eat'). The process of thematization is very common, but the extent of its spread, i.e. that the whole system was largely shaped according to one model, is without parallel among the Indo-European languages. In the course of this development all primary verbs are adapted to the system described above regardless of their original stem formations. This is valid for athematic verbs and suffixed verbs alike, all of which were integrated into this system. Although, for example, some of these verbs had regular zero grade in the present stem, they regularly appear with *e-* or *a-* grade in Germanic. The present tense in Germanic was clearly regularized according to the model of one Indo-European stem formation, the thematic conjugation with *e*-full grade. Synchronically, however, all present stems show one characteristic ablaut grade, which is of crucial importance for the formation of the other stems. In the preterit the regularization was not as drastic because there was probably only one possibility of forming the Indo-European perfect. Nonetheless, the fact that every ablauting verb possesses a preterit, irrespective of its inherent verbal aspect, clearly indicates another process of generalization – although one that is more common among the related languages.

However, the systematization of ablaut is not the most striking peculiarity about the Germanic strong verb system. Rather, ablaut was also functionalized to directly express grammatical categories in Germanic, as opposed to being a concomitant of a type of stem formation as in the parent language. The Indo-European system was based on the opposition of perfective vs. imperfective roots. Different stem formations were used to form corresponding aspectual stems. In cases in which there was only one possibility of aspectual formation, like in the case of the perfect, this is initially restricted to certain verbs. Since the perfective pole, i.e. the aorist, disappeared as a morphological category in Pre-Germanic, and a contrast based

on past vs. non-past was established, the various types of stem formation had to lose their functional value.⁶⁹ Though it is true that, for example, Indo-European suffix formations are still visible in Germanic, in the system of strong verbs they have no morphological or semantic function (see e.g. Makaev 1964: 32 and Ramat 1981: 61, 153). For example, presents with the Indo-European suffix ⁺*-ie/iq-* occur with different ablaut series, depending on which ablaut class the individual verb belongs to: For instance, Gmc. ⁺*set-ja-* 'sit' is in class V, whereas Gmc. ⁺*haf-ja-* 'lift' belongs to class VI (see e.g. Krahe 1967, II: 256). In the present tense it is no longer the stem formation that determines the ablaut pattern, but rather the other way around – ablaut patterns determine stem formations. Thus, it makes sense only from a diachronic point of view to group the strong verbs according to Indo-European stem formations, as Bammesberger (1986) and Krahe (1967) do. Synchronically, the strong verbs are best divided into ablauting and reduplicating verbs (cf. e.g. Braune 2004a: 143).

In the preterit of the ablauting verbs, i.e. classes I to VI, the functionalization of ablaut means that the morphological properties marking this category (i.e. the past tense) have been reduced from four in the Indo-European perfect (reduplication, ablaut, accent and personal ending) to two (ablaut and personal ending) in Germanic. If one looks at the stem formation only, i.e. excluding the personal endings, it becomes clear that the preterit in Germanic is exclusively marked by ablaut. One consequence of this development is that the root vowel of a verbal stem is of high functional but little lexical significance. It contributes to the allocation of an ablaut class, and, as the ablauting vowel, it forms the verbal stems. This role makes it clear that it acts more like an empty slot that is filled in accordance with the ablaut pattern. The lexical information is mainly carried by the remaining root structure as the vowel is subject to regular change, a phenomenon which is well known from Semitic languages whose roots are based on consonantal radicals. This typological resemblance was noted earlier (cf. also Kortlandt 1992: 104; Scheer 1995; Ségréal and Scheer 1997), and it underlines the peculiarity of Germanic in this respect.⁷⁰

69. Mailhammer (2006) proposes that the reduction of the Indo-European morphological system can be attributed to language contact, arguing that the internal development from the Indo-European parent language (cf. e.g. Hewson 1997: 217–219) is insufficiently motivated.

70. Although the use of ablaut is far more widespread in Semitic and fulfils more grammatical functions (cf. Kuryłowicz 1961: 17–28), the principle of a functional ablaut is largely the same as in the Germanic strong verbs. In addition,

In addition to this predominant status ablaut also remained productive throughout Germanic, a fact that has been noted by e.g. van Coetsem (1990: 13). Not only were words of Indo-European origin transformed according to the system's requirements, but also loanwords (see e.g. Ramat 1981: 63). Furthermore, the reduplicating verbs gave up a transparent reduplication in favour of an ablaut-like formation in all Germanic daughter languages except Gothic.⁷¹

To sum up, the functionalization and systematization of ablaut in the ablauting Germanic strong verb means that a temporal stem is marked exclusively by ablaut, whose shape is determined by the root structure of the verb's lexical base form, the present stem (i.e. the root). Consequently, ablaut has a significant morphological function since it can express a grammatical category directly.⁷² From a typological point of view, ablaut in Germanic occupies a position that is more similar to the Semitic languages than to Indo-European.

even though several authors have pointed out that the consonantal roots of Semitic are an idealization (e.g. Kuryłowicz 1961: 17), this abstraction makes sense due to the fact that ablaut alone can indicate grammatical categories (cf. also Laker 1997: 6–7). Even though a similar situation has been posited for the verbal system of (Pre-) Indo-European, as discussed in section 1.1, this does not make sense for Indo-European itself, because ablaut is generally not a distinctive property that indicates grammatical categories. Durrell (2001: 9) rejects the similarity of Semitic and Germanic ablaut on the grounds that ablaut is not predictable in Germanic. As will become clear in section 3.1.1, this is incorrect; ablaut grades are highly predictable in the ablaut system of Germanic strong verb on the basis of a verb's root (as defined in 1.3.2 above), i.e. the lexical base. In fact, this is one of the system's key characteristics.

71. Although forms, such as the Northwest-Germanic *verba pura*, e.g. ON *sá* : *sera* 'sow', and the West-Germanic forms of Gmc. **dō-* 'do', e.g. OHG *tuon* : *teta*, display reduplication, as a synchronic morphological property it is opaque in these dialects, and can consequently be neglected here.
72. The Germanic development thus revived an "almost dead" ablaut and saved it from slipping into complete meaninglessness, as Theo Vennemann (Munich, p.c.) once put it. Although it is found in nearly every Indo-European language, nowhere did it acquire such functional prominence (see also Ramat 1981: 67).

2. The surface structure of the Germanic verb system

According to the evidence presented by the Germanic daughter languages, the Germanic verbal system displays two essential parts (see e.g. Bammesberger 1986; Krahe 1967; Meid 1971 and van Coetsem 1990) that were labelled the *strong* and *weak verbs* by Jacob Grimm signifying the fundamental morphological difference between the two components (cf. also Ramat 1981: 160). As far as stem formation is concerned, the *strong* verbs constitute the more progressive and innovative group (functionalization and systematization of ablaut), whereas the *weak* verbs represent the more conservative part of the Germanic verbal system (stem-formation with suffixes like in the parent language).⁷³ To Grimm, the *strong verbs* had the power to express grammatical categories without any external help, i.e. by change of the root vowel but without suffixes. Consequently these verbs were seen by Grimm as being “stronger” than their “weak” counterparts, forming their stems with the help of suffixes that are either inherited from Indo-European (e.g. Gmc. $^{+}(e)j^{e}/a-$ < IE $^{+}\acute{e}j^{e}/o-$)⁷⁴ or a Germanic innovation (cf. recently Hill 2004 on the origin of the dental suffix). In contrast to those strong verbs that do exhibit Indo-European suffixes of stem formation (cf. 1.3 above), in the weak verbs these suffixes are a principal mark fulfilling not only a morphological (e.g. the formation of the preterit with the new dental suffix) but also a semantic purpose (e.g. causative *-jan-* verbs vs. ornative *-ōn-* verbs in Old High German). From a synchronic point of view, the main difference between weak verbs and strong verbs is that the latter are primary, i.e. non-derived verbs. This is either due to the fact that they somehow go back to Indo-European verbal roots (e.g. Gmc. $^{+}kwem-a-$ ‘come’ < IE $^{+}g^{u}em-$ ‘come’), or because the original base has been lost, and consequently the explicit derivation would have been obscure to the native speaker (e.g. Gmc. $^{+}bed-ja-$ ‘demand’). Therefore, although strong verbs can display a suffix that is also found among the weak verbs, i.e. Gmc. $^{+}(e)j^{e}/a-$ < IE $^{+}\acute{e}j^{e}/o-$ in $^{+}bed-ja-$ ‘demand’ (strong) vs. $^{+}bug-ja-$ ‘buy’ (weak), synchronically this is not interpreted as a functional

73. The weak preterit is clearly an innovation. From the viewpoint of the attested forms, however, it is a suffixed formation, and thus ‘conventional’. This does not interfere with the general view that the weak preterit originated from a periphrastic construction involving forms of Gmc. $^{+}do-$ ‘do’.

74. In this study semivowels in Germanic are noted using *w* and *j*, whereas for Indo-European forms the notation prevalent in the Indo-Europeanist literature is employed.

and transparent suffix but as part of the personal ending (cf. 1.3.2 above). As a result, from a synchronic point of view, the assignment of almost any Germanic verb is perfectly predictable: if it possesses a suffix that is either not found among the strong verbs or that has a derivative function, then it belongs to the weak group, otherwise it is considered a strong verb.

Unlike Indo-European and most other related languages, Germanic does not exhibit verbal aspect as a morphological category but a bipolar temporal opposition between present and past, i.e. present tense and preterit. In addition, Germanic only possesses the subjunctive (largely the inherited optative) and the imperative as the sole remnants of Indo-European mood categories. As a result, the Germanic verbal system presents itself very differently from the reconstructed parent language and most other related ancient Indo-European languages.⁷⁵ A Germanic verb automatically belongs to either the strong or weak verbs and comes with a comprehensive paradigm expressing all grammatical categories. This stands in sharp contrast to the parent language, in which the inherent verbal aspect has a decisive influence on the construction of verbal paradigms, whose formation is not fully predictable (see also 1.1.4 above).

From this discussion it follows therefore that the categorization of the Germanic strong verbs into strong and weak verbs is fundamental from a synchronic point of view. However, as Bammesberger (1986: 32) points out, this distinction is of little use (“von geringem Nutzen”) from a diachronic perspective focusing on the development and the representation of Indo-European types of stem formation. Nonetheless, Krahe’s (1967: 230) statement that Germanic verbal stem formation used suffixes, can only be partially agreed with because this is only valid for the weak but not for the strong verbs, since there the suffixes have to be considered purely historical. As Austefjord (1984) correctly notes, the differences within Indo-European stem formation have largely disappeared due to the generalization of ablaut. Where still visible, however, they are left without function (see also Makaev 1964: 32–33). Nevertheless, the accounts by Bammesberger (1986) and Krahe (1967) are certainly beneficial from a diachronic and evolutionary point of view. More importantly, however, they provide a vivid illustration of the fundamental difference between the verbal mor-

75. As noted above, the only exception is Hittite. Whether or not the verbal systems of Hittite and Germanic go back to some common source has been the subject of numerous studies, all of which have rendered no tangible results. For an overview see Hewson and Bubenik (1997), on Hittite most recently Jasanoff (2003).

phology of Indo-European and Germanic because it is apparent that the application of the Indo-European morphological perspective to the Germanic strong verbs does not match the synchronic facts, and is thus artificial.

3. A tripartite system: The Germanic strong verbs

This section presents the Germanic strong verbs, focusing on the high degree of organization that was attained through the systematization and functionalization of ablaut, which is in contrast to the diachronically oriented accounts in most textbooks. Consequently, the strong verbs are analysed as a system, incorporating the considerations on the status of ablaut presented in section 1. above, which are of the utmost significance in differentiating Germanic from its parent language. It will be another point of focus to illustrate the far-reaching process of fusion and simplification that created this highly organized system, leaving plenty of loose ends and peculiar traces (see section 4. below).

The systematized and functionalized ablaut – the hallmark of the strong verbs – is common to all Germanic languages. It has lived through over two thousand years of sometimes drastic language change. Its resilience, for instance in Modern German, English and Icelandic, has often caused amazement among scholars (see e.g. the quotations in chapter one). The basic facts of the system of strong verbs have already been noted in 1.3.2 above. In concrete terms this means that the key factor in strong verb morphology is a verb's phonological root structure because it determines its stem formation, which in turn uses ablaut as the only morphological property.⁷⁶ Consequently, the type of stem formation reflects the verb's ablaut pattern, i.e. the preset change of ablaut grades throughout the paradigm. The stems of a Germanic strong verb can exhibit up to four different ablaut grades, e.g. class IV: ⁺*nem-*, ⁺*nam-*, ⁺*nēm-*, ⁺*num-* (⁺*nema-* 'take'). As noted in 1.3.2, some authors have suggested ablaut patterns and even ablaut

76. It has to be emphasized that stem formation is the subject here. Of course, grammatical categories in the strong verbs of Germanic can be mostly identified unambiguously by the personal endings. But the pure stem, i.e. the part of the root carrying the bulk of semantic information serving to identify the verb, uses only ablaut. Recall that Indo-European used affixes, ablaut and accent as complementary morphological devices to indicate grammatical categories on the verbal stem.

classes for Indo-European. However, in the verb morphology of Indo-European ablaut has no morphological meaning. The change of ablaut grade does not convey a functional distinction, in particular as it is mostly used redundantly. Moreover, since there are only two ablaut grades in one Indo-European paradigm, and since ablaut is not characteristic for a given type of stem formation, the term *pattern* seems exaggerated, but the organization of Indo-European verbs into ablaut classes advanced by Voyles (1992: 258) is misguided and cannot be supported. Furthermore, the ablaut patterns that are postulated in the handbooks (e.g. Birkhan 1985: 134–137 and Brugmann 1972: 245) do not permit a systematic organization to a similar extent as in Germanic (cf. also Meier-Brügger 2000: 136). Consequently I will use the compromise *ablaut pattern* in a very broad sense for the alternation of ablaut in Indo-European or in a general sense. The terms *ablaut series* or *ablaut class*, however, will only be used for Germanic due to the unique systematization and functionalization of ablaut there.

Due to the fact that a particular root structure is automatically connected to a pre-defined ablaut series the well-known ablaut classes can be set up. Van Coetsem (1990: 33) explicitly points out the prominent role of a verb's root structure:

What determines the individuality of the RS [root structure] is the fact that it co-occurs with a specific AS [ablaut series]. ... The RS is consequently a phonological and external ordering principle to the AS.

In other words, the dominant position of ablaut in the strong verbs is illustrated by the fact that the whole system was organized around this morphological property. Within each ablaut class, the inherited ablaut grades are used, i.e. a vowel can assume a different quality, quantity or both. Deviations and irregular grades are described in more detail below (sections 3.1.3 to 3.1.8 and 3.2). As mentioned above, the systematization of ablaut entails that every strong verb is characterized by four different stem forms (G *Stammformen*) that reflect the relevant ablaut class, i.e. the preset alternation of ablaut grades. Thus, for example, Gmc. ⁺*nema-* is sufficiently identified by the four stem forms ⁺*nem-*, ⁺*nam-*, ⁺*nēm-*, ⁺*num-*. As van Coetsem (1990: 35) points out, these stem forms directly reflect grammatical categories, they are characteristic for tense and mood: “The AS [ablaut series] distinguishes inflectional categories”. For example, the first stem form always characterises the indicative and the subjunctive of the present as well as the imperative. This is the functional value of ablaut, i.e. it expresses grammatical categories distinctively on the verbal stem in a fully predictable way. As a result, the notion of systematization and functionali-

zation of ablaut that has shaped the Germanic strong verbs can be accurately described by saying that verbs are organized according to the characteristic alternation of ablaut grades that directly reflect grammatical categories (see also Ramat 1981: 153 and Vennemann 1994: 193).

The system of strong verbs is usually subdivided into ablauting and non-ablauting verbs. Whereas the former group exhibits ablaut as its central morphological property, and consequently is categorized into six ablaut classes, the latter is characterized by the fact that reduplication serves to differentiate the past from the present tense without regular ablaut. Although this rough classification found in most handbooks has its merits, it does not elucidate the more intricate cross-relationship between ablauting and non-ablauting verbs. This is van Coetsem's (1990: 22) key argument for the fundamental distinction of strong verbs having *e* and those that have *a* as their root vowel:

To a large extent the lack of clear recognition of the distinction between *e* and *a* verbs in former research is attributable to periodization and reconstruction inadequacies, as well as to a faulty analysis of the diphthongs.

Although van Coetsem's proposal offers valuable insights into the internal organization of the strong verbs, it also has its limitations because it does not permit a full understanding of the reduplicative verbs, which are discussed in section 3.3. This study combines both approaches, each according to its advantages. Consequently the strong verbs are subdivided into a *primary system* (traditional class I to V or van Coetsem's *e*-verbs), a *secondary system* (class VI or a large part of van Coetsem's *a*-verbs) and a *parallel system* of verbs acting as a safety net for verbs that could be integrated in neither group. Primary and secondary system together comprise the ablauting verbs, whereas the parallel system includes the reduplicating verbs. Nonetheless, the traditional organization into classes is maintained in this study. On the one hand, this is due to the practical reason that this categorization has a long tradition and most linguists are familiar with it. On the other hand, the ablaut classes signify very well the ordering principle behind the strong verbs. Van Coetsem's distinction is very useful in understanding the internal structure of the system but very impractical for Germanic because it is valid for a proto-stage of this language only.

3.1. The primary system: Classes I to V

3.1.1. Mechanism

The inherited ablaut grades *e*, *a* (IE *o* > Gmc. *a*) and $\emptyset$, which can be described in terms of loose patterns in Indo-European, as illustrated by Gk. *πατέρα* ‘father’ (acc. sg., *e*-grade), *πατρί* ‘father’ (dat. sg., zero grade), *ἄπατορα* ‘a fatherless person’ (compound, acc. sg., *o*-grade), form the backbone of the primary system. All verbs in this system, i.e. verbs with *e*-vocalism, originally followed the same fundamental ablaut pattern: *e*-grade for the present (indicative, subjunctive, participle and imperative), *a*-grade for the preterit singular and zero grade for the remaining forms (preterit plural, preterit subjunctive and past participle). In other words, at a very early stage of Germanic, which van Coetsem (1990:19) calls “the *e*-*a*-period”, the primary system consisted of just one class comprising all strong verbs with *e* as their root vowel. From this perspective the grouping into *e*- and *a*-verbs makes perfect sense, but already in Germanic the unity of the primary system is being obscured and eventually destroyed by regular sound change to the extent that it is uncertain whether all “*e*-verbs” still possessed *e* as a root vowel over the entire period of Germanic.

From a typological point of view and in comparison with the related languages, the ablauting Germanic verbs come closest to the Semitic prototype with regard to the morphological distinctiveness of ablaut (see also Kortlandt 1992: 104). An ablauting verb’s root vowel has a functional value, as it mainly determines the system the verb belongs to, either the primary system (*e*-vocalism) or the secondary system (*a*-vocalism). Its lexical content, however, is very limited. Once a verb is allocated to a system, the root vowel becomes lexically irrelevant as it alternates, thereby indicating grammatical categories.

Thus, a lexical root within its system – i.e. primary (*e*) or secondary (*a*) – may also be symbolized C□C- (C represents a single consonant as well as a cluster). The empty slot is filled by the ablauting vowel according to the ablaut pattern described above. For example a Germanic strong verb with a diphthongal root, e.g. ⁺*keusa-* ‘choose’, after the assignment into the primary system, might as well be symbolized as ⁺⁺*k□us* because the remaining morphonological material is fully predictable according to mor-

phological rules.⁷⁷ Accordingly, the first person preterit singular receives a “vocalization” ⁺*kaus-* (a-grade), the past participle ⁺*køuzana-* (zero grade) and so on. For Gmc. ⁺*fenþa-* ‘find’ this would work analogously: ⁺⁺*f□np* as root, with “vocalizations” ⁺*fanþ-* and ⁺*fundana-* (IE ⁺*n̥* > Gmc. ⁺*un*) in the respective forms. Typologically, this comes very close to the consonantal roots of Semitic with their vocalizations, e.g. Arabic *ktb* ‘write’, *kataba* ‘he wrote’ (perfect), *kutiba* ‘it was written’ (passive) and so forth (see e.g. Lipiński 1997 and Versteegh 1997). Note, however, that this is a purely typological observation that does not necessarily entail any explanatory proposals. However, as sketched in chapter four of this study, this typological similarity of the Semitic languages and Germanic can be used as a starting point for a hypothesis on the genesis of the Germanic strong verb system (cf. Mailhammer 2006).

3.1.2. A reconstruction of the primary system

Although the handbooks on Germanic and its daughter languages generally provide a description of the different ablaut classes, the majority of them do not include the full systematic account, or show only a rudimentary picture. *Table 1* shows the assumed state of the system for the largest part of the Germanic period. It is an adaptation from the tables in Birkhan (1985: 140–141) and de Boor and Wisniewski (1984: 56–57). In class III the representation of the zero grade as Gmc. ⁺*u* is due to the fact that the overwhelming majority of the verbs in this class actually have the structure CeRC- (e.g. ⁺*fenþa-* ‘find’) or CReCC- (e.g. ⁺*flehta-* ‘braid’). The zero grade in these cases, i.e. CR̥C(C)-, regularly yields CuRC(C)- in Germanic. However, because verbs with the structure CeOC- (with O = obstruent, e.g. ⁺*feh̥ta-* ‘fight’) appear in this class in all Germanic dialects, the general formula for this class has been altered here contrary to the traditional representation (see also 3.1.5 and 3.1.8 below, where this matter is discussed in detail). Note that this does not influence the classification in the Germanic daughter languages directly; it rather explains cases that hitherto have been viewed as exceptional, e.g. OHG *flehtan* ‘braid’, as results of a regular development.

77. The notation of strong verbs with an empty square denoting the ablaut slot was suggested by Theo Vennemann (Munich, in lecture courses and seminars).

Table 1. The primary system of the Germanic strong verbs⁷⁸

	PRES. TENSE	PRET. SG.	PRET. PL. (ind. /subj.)	PAST PART.
	ablaut gr. infinitive	ablaut gr. 1 st sg. ind.	ablaut gr. 1 st pl. ind.	ablaut gr.
I	eF	aF	Z	Z
C□iC- +st□ig- 'ascend'	CeiC- +steiga-	CaiC- +staig-	CØiC- +stigum-	CØiC- +stigana-
II	eF	aF	Z	Z
C□uC- +k□us- 'choose'	CeuC- +keusa-	CauC- +kaus-	CØuC- +kuzum-	CØuC- +kuzana-
III	eF	aF	Z	Z
C□CC- +f□np- 'find'	CeCC- +fenþa-	CaCC- +fanþ-	CØCC- +fundum-	CØCC- +fundana-
IV	eF	aF	eL	Z
C□R- +n□m- 'take'	CeR- +nema-	CaR- +nam-	Cē ₁ R- +nē ₁ mum-	CuR- +numana-
V	eF	aF	eL	eF
C□C- +g□b- 'give'	CeC- +geba-	CaC- +gab-	Cē ₁ C- +gē ₁ bum-	CeC- +gebana-

It is evident from *Table 1* that one single ablaut pattern for the whole primary system cannot be assumed for the complete period of Germanic. This is because early sound changes caused a split into several different subgroups, the well-known ablaut classes. Nonetheless, this split does not alter the mechanism described above because these sound changes occurred regularly depending on the phonological environment, and they mainly affected the ablauting vowel. Despite these changes the system remained intact. The root vowel of the present stem still is characteristic for the system (primary or secondary), it assigns the ablaut pattern, and it still acts like an empty slot filled according to the pattern. Instead of one pattern there are now three, showing minor variations. It is, of course, difficult to tell which soundchanges have to be assumed for this stage of Germanic, and every

78. C: consonant, R: sonorant (nasal / liquid), F: full grade, Z: zero grade, L: lengthened grade, ind.: indicative, subj.: subjunctive, imp.: imperative, inf.: infinitive, part.: participle, pret.: preterit.

and every solution is necessarily a compromise involving some speculation. *Table 1* presupposes the following phonological developments.

First of all, there is, of course, Grimm's Law and the independent change from IE $^+o > ^+a$, both of which must have happened very early as they belong to the defining features of Germanic. Furthermore, the effect of Verner's Law is to be expected as the pre-Germanic present and the preterit singular stem (< perfect singular) generally were accented on the root whereas in the preterit plural (< perfect plural) and the past participle the root was unaccented.⁷⁹ This accounts for the alternation of the root-final voiceless fricative (present/preterit sg.) with a voiced stop (preterit pl. and past participle) after Grimm's Law, e.g. in class II: $^+tauh-$ vs. $^+tugum-$ (Gmc. $^+teuha-$ 'pull, drag'). In addition, there is the change $^+u > ^+o$ in syllables followed by *a* in e.g. OHG *gikoran*, OE *coren* 'chosen'. Though it is included in the table by Birkhan (1985: 140–141), it is omitted here because it is not entirely clear when this sound change took place. In addition, the following developments are presupposed for the first five classes.

– **Class I:** no alteration. The change $^+ei > ^+i$ ⁸⁰; posited for pre-Germanic times in virtually all handbooks (e.g. Prokosch 1939: 105 and Brunner 1969: 36), which affects the root vowel in the present, may well have been completed by Germanic times. Nonetheless, for systematic reasons it is not presupposed in this representation, particularly since the alteration is minimal and does not influence the ablaut pattern itself (see also Seebold 1970).

– **Class II:** no alteration

– **Class III:** most handbooks assume the subdivision into verbs with *e* and *i* in the present due to the rule $^+e + NC > ^+i + NC$ (e.g. $^+fenpa-$ > $^+finpa-$). By contrast, this study follows Seebold (1970) in the assumption of a Germanic period without this change for reasons of systematicity.

– **Classes IV and V:** The lengthened grade of classes IV and V, as well as the full grade of class V will be discussed in section 3.1.8. It is uncontested that they have to be posited for an early stage of the language.

Due to these developments, the primary system is split up into several different groups. Nonetheless, this does not significantly alter the mechanism described above, as the sound changes are always conditioned by the

79. Certain irregularities in the distribution of Verner variants and the implication for the underlying IE stem formation will be discussed in section 5 below.

80. In Gothic <ei> is an orthographic convention signifying /i/ (Braune 2004a: 37).

phonological environment and only affect the ablauting vowels. Thus, it is still the root structure that determines a fully predicable ablaut pattern. The only difference is that the primary system develops slight deviations from the standard ablaut pattern, which is nevertheless predominant, given that the bulk of verbs (classes I to III) use it. Eventually, sound changes causing the split into too many subdivisions with only a few members destroy the system because its predictability and reliability are lost (e.g. in Modern German and English, cf. Mailhammer *in press* and *forthc.*). What remains is a vague notion of the mechanism. Groups with a high type and token frequency serve as a model in language acquisition and the construction of nonsense-words as their root structure is used as guidance. The significance of schemas like these in the research of language acquisition and integration of loanwords has been increasingly noted in recent years (see e.g. Bybee and Slobin 1982; Köpcke 1998; Lindner 1998; Albright 2002 and Blevins 2003).

The following sections analyse the individual classes of the primary system with their structural features in order to provide a background for the etymological investigation. However, with the exception of class V, this structural investigation of the primary system is very brief, as existing studies provide virtually exhaustive accounts. Here mainly special quantitative investigations into root structure as well as into some little noticed features are carried out.

3.1.3. *Class I*

The characteristic root structure for this class is a diphthongal base consisting of the ablauting vowel *e* plus *I*: *CeiC-*, i.e. *C□iC-* (see *Table 1*). However, it is important to recall here that only the radical *e* is significant for the allocation of the ablaut system, i.e. in this case the primary system. Once the verb's system is assigned, the characteristic diphthongal root structure automatically determines its inflection according to the pattern of class I. This class displays the regular ablaut pattern of the primary system (see *Table 1*): the full grade in the first and second stem form is the first element of a diphthong, whereas the semivowel takes over the part of the syllable nucleus in the third and fourth stem form because the ablauting vowel exhibits zero grade. There is only one irregularity in the ablaut pattern and this is that due to the regular sound change of IE $^*e\bar{i} > Gmc.$ *i the root vowel in the present stem becomes monophthongal at some stage of

Germanic. Birkhan (1985: 141) notes that there is no breaking ${}^+i > {}^+e$ (before *e, a, o*) attested in the fourth stem form for unknown reasons (“aus unbekannten Gründen”). Moreover, Birkhan (1985: 141) wonders why ${}^+i$ in the first stem form is not changed to ${}^+\bar{e}_2$, which is a very odd question since, for all that is known, breaking of long vowels did not occur (besides, not all forms of the present stem sub-paradigm have *a* following the root), and ${}^+\bar{e}_2$ is usually explained differently. The traditional literature reconstructs it as the result of IE ${}^+\bar{e}+i > {}^+\bar{e}_2$ (e.g. de Boer and Wisniewski 1984: 47). By contrast, there is strong indication that this sound developed in post-Germanic times, as it is only found in North and West Germanic languages with the exception of Anglian. The process is quite straightforward (see d’Alquen 1996: 72 and Vennemann 1997: 303–304):

- (2) Development of ${}^+\bar{e}_2$ (Vennemann 1997: 304):
 ${}^+z > R$ context-free, hence ${}^+iz > {}^+iR$, then lowering
 ${}^+i > {}^+e / _____ {}^+R$, and finally ${}^+eR > \bar{e} / _____ C$ ($\bar{e} = \bar{e}_2$)

This analysis is supported by the fact that Goth. *mizdō* (cf. Gk. *μισθός*, OI *mīdham*) corresponds to OE *mēd* (but Angl. *meord*), OS *mēda*, OHG *miata* (all meaning ‘pay, reward’). If this interpretation is correct, then it is easy to see that ${}^+\bar{e}_2$ could hardly develop in the first stem form of class I because of the root structure and the fact that Verner’s Law generally only produces voiced variants at the end of unaccented syllables. But also the traditional reconstruction ${}^+\bar{e}_2$ is highly problematic as the root vowel is *e* and not $\bar{e}$.

In order to assess the claim advanced by Jarosch (1995–), according to which there are virtually no voiced stops as root-final consonants among the classes I to III (see 4. below), and also to provide an overview on the consonantal make-up of the roots of the strong verbs, each subsection dealing with a particular class includes a survey of root-initial and root-final sounds. Appendix B contains a list of all strong verbs that are included in this study, which permits a verification of these figures.

The vast majority of roots (over 60%) in this class begin either with a consonant cluster with sonorants or the semivowel ${}^+w$ as a second element. Strikingly, among single consonants sonorants and semivowels are the most frequent. Thus, as a rule, the root-syllable onsets in class I consist of sounds which are dispreferred by universal rules for syllable structure formulated by Vennemann (1988: 13–21): According to Vennemann’s Head Law, the optimal syllable head consists of a single, strong consonant (see Vennemann 1988: 8–10 for the concept of consonantal strength and the phonological terms). By contrast, a survey of root-final consonants shows

that in more than 90% of the verbs single consonants close the root, which is completely in line with the Head Law (see Vennemann 1988: 13–21), even more so as these are largely obstruents with a high consonantal strength. Voiceless stops account for about 30% of root-final consonants and voiced stops for more than 25%. The voiceless fricatives also have a frequency of about 25%. The remaining 20% are covered by sonorants and semivowels. This result is certainly in line with Vennemann's (1988) Preference Laws for Syllable Structure.

Virtually all roots lack Indo-European determinants, and there is only one thematic suffix (reflected by Gmc. ⁺*-ska-*) beside the usual thematic vowel. There is a group of eleven verbs that have been analysed as original (athematic) nasal presents, e.g. Gmc. ⁺*dwei-na-* 'dwindle', ⁺*gei-na-* 'yawn'. It is, however, apparent that such an interpretation implies that the Germanic root vocalism is secondary because nasal presents are commonly assumed to have zero grade in the proto-language. Moreover, it has to be noted that most verbs in this group do not have good Indo-European etymologies (see Appendix B), presenting further complications for the interpretation of ⁺*-na-* as a nasal affix which can only be pointed out here but not addressed in detail. In addition, there are verbs exhibiting deviant root vowels, a topic that will be discussed in the fourth section of this chapter. The point sustained here is that these irregularities have to be seen as traces of a large-scale merger leading to the constitution of the primary system.

Finally, there is one noteworthy feature linking morphology and semantics. Class I contains verbs possessing similar root structures as well as similar meanings (see Seebold 1970: 429, "strukturell einheitliche gm. Gruppe"). ⁺*sleika-*, ⁺*sleida-*, ⁺*gleida-*, ⁺*skreipa-* all mean 'to glide' and ⁺*weipa-*, ⁺*wreihā-*, ⁺*wreipa-* all mean 'wind' or 'glide'. This group also has members in classes II and III, and will be referred to as the SCG-group ('sneak – creep – glide'), an abbreviation of the semantic fields of the verbs involved.

3.1.4. Class II

This class has a very similar root structure to class I, with the only difference being the second element of the diphthong (⁺*i* instead of ⁺*u*). Thus, the characteristic root structure for class II can be formulated as *CeuC-*, i.e. *C□uC* as an abstraction. Due to the diphthongal structure the regular ablaut pattern remains intact with only one alternation due to regular sound

change. In the fourth stem form ${}^+u$ shows up as ${}^+o$ as a result of breaking in the attested daughter languages. There is a distinct subgroup displaying ${}^+ū$ as the root vowel attested especially well in Old English and Old Frisian, which has been the subject of numerous studies, and which will be dealt with in section 4.2 of this chapter.

Looking first at the root-initial consonants in class II, the situation is similar to class I. The majority of roots begin with consonant clusters, and single consonants as root-initial consonants generally have a relatively low consonantal strength, but as a tendency it is higher than in class I. However, it is striking that there are no semivocalic onsets, in particular when compared to class I, which has an almost identical root structure. Root-final consonants also exhibit a pattern similar to that of class I. Voiceless plosives are the most numerous (40%), obstruents in general account for 90% of all root-final consonants, with much the same proportions as found in class I (voiced stops 25% and voiceless fricatives below 25%). The remaining 10% are made up by the semivowel ${}^+w$. The following verbs in this class belong to the SCG-group mentioned in 3.2.3: ${}^+kreuka-$, ${}^+kreupa-$, ${}^+sleupa-$, ${}^+glūpa-$, ${}^+krūpa-$. They all convey the meaning of ‘sneak, creep’ and moreover, exhibit a peculiar and high occurrence of ${}^+p$, which will be evaluated in chapter three.

3.1.5. Class III

The special position of class III within the system of the Germanic strong verbs is described by Birkhan (1979: 59). He highlights the syncretism leading to the development of the system of strong verbs by quoting Prokosch (1939: 169), who says “every verb of this class may be considered a transfer from some other class, either through extension by a determinant or through a nasal infix”. As a result of this process of homogeneization (see section 4. below), class III displays a completely uniform ablaut pattern. The literature views the defining root structure of class III as diphthongal, possessing the structure CeRC, i.e. C□RC. However, this is in fact not supported by the data. As pointed out in sections 3.1.7 and 3.1.8 below, verbs with two root-final obstruents, which, according to the traditional accounts, are part of class V, regularly pattern with class III. The literature generally notes some of these cases as exceptions (most notably Gmc. ${}^+feh̥ta-$ ‘fight’) without recognizing the systematicity behind these ‘deviant’ allocations (see e.g. Brunner 1967: 299; Braune 2004a: 51–52, 2004b: 282). It can be demonstrated that actually all verbs with the struc-

ture CeCC- systematically pattern with class III, so that its defining root-structure ought to be reformulated as CeCC (with C representing all consonants) instead of CeRC- (see also Ringe 2006: 243). The reason why this has not been recognized in the literature is the fact that, with the exception of ⁺*feh*ta- ‘fight’ and ⁺*peh*sa- ‘swing flax’ all verbs with two root-final obstruents (i.e. CeOO- with O specifying obstruents) possess a root-initial cluster whose last element immediately preceding the syllable nucleus is a sonorant, i.e. CReOO, which allows the development of a more or less regular zero grade, as explained in 3.1.8 below. Consequently, ⁺*feh*ta and ⁺*peh*sa- are the strongest arguments for the view presented in this study, according to which the defining root structure of class III is in fact CeCC-, and that the traditional formula (CeRC-) is merely due to the coincidence that CeOC- verbs are quite naturally extremely rare given the restrictions on Indo-European root structure, banning monosyllabic and non-enlarged CeOC- roots.

At a point that cannot be exactly determined, class III split up into two subclasses that are traditionally differentiated by liquid vs. nasal as second element of the assumed diphthong as ⁺*e* changed to ⁺*i* before NC-clusters, i.e. ⁺*fen*pa- > ⁺*fin*pa- ‘find’. The CeOC-verbs follow the group with liquids, i.e. ⁺*help*a- ‘help’, ⁺*wer*pa- ‘throw’ etc., which becomes clear once their development is examined (see 3.1.8 below). Furthermore, as in class II, the breaking of ⁺*u* > ⁺*o* regularly takes place in the attested daughter languages, but only in roots with a liquid following the root vowel, i.e. ⁺*help*a- : ⁺*hol*pana-.

Contrary to the two previous classes, there is a nearly equal number of root-initial syllable heads consisting of a cluster and those consisting of a single sound. Moreover, this class has one verb (the preterit present ⁺*ann*-) beginning with a vowel (⁺*a*) and, like class I, comparatively many root-initial occurrences of ⁺*w*. A difference between this and the two previous classes is the fact that root-syllable heads are more often strong consonants with weak consonants, semivowels and vowels accounting for less than 20%. Roots in this class always end in consonant clusters. By far the largest group of clusters (122 verbs) contain a sonorant as their first element, which is the traditional characteristic of this group. The remaining verbs in this class have either *h* (two verbs) or *s* (ten verbs) as the first element of their root-final clusters. In order to assess the claim made by Jarosch (1995– *et passim*), according to which verbs in classes I to III almost never possess voiceless stops in root-final position (see 4. below), root-final obstruents have to be quantified. For the purpose of this investigation it is irrelevant whether the obstruent is the first, second or third element in the

cluster because all these positions are potentially subject to Verner's Law. What matters is whether the verb in question displays an obstruent after the vowel of the root syllable or not. The largest group are verbs with a voiceless stop in their root-final cluster (about 35% of all verbs in class III), e.g. ⁺*berka-* 'bark' and ⁺*helpa-* 'help'. Voiced stops occur in about 28 % of all class III verbs (e.g. ⁺*bregda-* 'draw, pull out' and ⁺*grenda-* 'grind') and voiceless fricatives in about 14% (e.g. ⁺*fehta-* 'fight' and ⁺*werpa-* 'become'). Verbs with geminates form a distinct subgroup of class III, accounting for roughly a fifth of the entire class. Moreover, it is noteworthy that the variation of root final consonants is very high in *r-* and *l-*verbs but verbs with nasals as a second element exhibit a very low variation. There are 14 verbs possessing a *Rp*-cluster, e.g. ⁺*werpa-* 'throw', ⁺*helpa-* 'help' and ⁺*slempa-* 'glide', which is odd considering the notorious "labial gap" in Indo-European.⁸¹ In addition, it is noteworthy that voiceless fricatives only account for 15% of root-final consonants. In fact, this group displays the lowest frequency of all root-final segments.

As in the previous classes there are connections between morphology and semantics: 15 verbs (about 12 %) belong to the above-mentioned SCG-group, which is the highest amount of all classes. Eight of these verbs contain a root-final ⁺*p*, e.g. ⁺*skrempa-* 'shrink, slide', ⁺*hrempe-* 'shrink', whose etymological significance will be discussed in chapter three. Another group of verbs (about 10 %) conveys the meaning 'make noise, becoming louder, swell' with more than half of these featuring a geminated ⁺*l*, e.g. ⁺*hella-* '(re-)sound' ⁺*swella-* 'swell'.

3.1.6. Class IV

The characteristic root structure of class IV is *CeR*, i.e. *C□R-*. Thus, just as in the previous classes, the regular ablaut pattern should remain intact. However, it is only the preterit-presents of this class that display the regular zero grade in the present plural stem (corresponding to the preterit plural stem of regular verbs), as the remaining verbs have taken over the lengthened grade from class V (cf. 3.1.8 below). Note that a number of verbs that according to their root structure belong to class V, actually pattern with class IV in several dialects. Compare e.g. OE *sprecan* – *spræc* – *spræcon* – *sprecen* with OHG *sprehhan* – *sprah* – *sprāhhum* – *gisprohhan*

81. According to the general opinion, IE ⁺*b* was very rare if it existed at all (see e.g. Meid 1989 for a discussion).

‘speak’, the former showing a class V pattern (e-full grade in the participle) as opposed to the latter displaying a class IV pattern (zero grade participle). This issue will be taken up in section 3.1.8 below.

Due to the requirements of the root structure this class is very small, and could also be categorized as a subgroup of class V. But because the ablaut pattern is different and traditional descriptions usually have kept both classes distinct, they are investigated separately in this study. In root-initial position mainly clusters are found, with those containing ⁺w as second element being the most frequent. In root-final position, by definition there are only single sonorants, the bulk of which are liquids. There are no striking results concerning the semantics-morphology interface.

3.1.7. Class V

Class V has a very “Indo-European” syllable structure, which is the canonical root proposed by Emile Benveniste, CeC, i.e. C□C.⁸² However, this is also the reason why the regular ablaut pattern is bound to experience some changes, since a regular zero grade in Germanic would be impossible due to the stress on the root syllable and lack of reduplication (see section 3.1.8). Little attention has been paid to the fact that a number of verbs traditionally seen as belonging to class V (by virtue of the traditionally assumed root structure) actually pattern with class III in the attested Germanic daughter languages. These are verbs with two root-final obstruents, such as OE *feohtan* – *feht* – *fuhton* – *fohten* ‘fight’. Moreover, verbs with a root-initial consonant cluster that includes a sonorant often display class-IV-participles, sometimes with class V doublets, e.g. Gmc. ⁺*spreka* ‘speak’ (OHG *gisprohhan* vs. OE *sprecen*). As noted in 3.1.6 above, the literature generally points out these cases as exceptions without fully addressing the system behind these phenomena. This issue will be addressed in more detail in section 3.1.8 below. It is striking that only verbs that possess one root-final obstruent show a more or less stable class V inflection, which may in fact indicate that the defining constraint of class V is a single root-final obstruent, as verbs with a root-final obstruent cluster (e.g. ⁺*fehhta* ‘fight’ and ⁺*bregda* ‘draw, pull out’) do not exhibit a class V ablaut pat-

82. C can also denote clusters. This is the standard theory that can be found in any textbook of Indo-European (e.g. Szemerényi 1990; Meier-Brügger 2000 and Tichy 2004).

tern but the pattern of class III, with which they share the heavy root syllable.

In root-initial position there is a high diversity in sounds. There are 18 different consonant clusters, the majority of which only occur once in the entire class. Single obstruents are comparatively rare with sonorants being the most frequent (roughly 18%), but voiceless obstruents are very rare and are always part of a cluster. In general, single consonants are of medium strength, whereas clusters generally have a sonorant or a semivowel as a second element. In root-final position the high proportion of voiceless fricatives (about 38%) is striking. By contrast, root-final voiceless stops, which account for a significant amount of the verbs in classes I to III, are found in about 29% of all verbs in class V and the proportion of voiced stops is about 27%. Thus, voiceless stops, for the first time, are not the most numerous root-final segments but voiceless fricatives are. This is also a novelty because in classes I to III the voiceless fricatives are a little under-represented. No obvious morphosemantic peculiarities can be noted in this class.

3.1.8. Lengthened grade and full grade in classes IV and V

As noted above, the ablaut pattern for the classes IV and V differs from that of classes I to III in that it displays lengthened grade in the preterit singular stem instead of zero grade. In addition, the past participle of class V shows *e*-full grade as opposed to that of classes I to IV, which possess zero grade in the relevant position. This can be illustrated with OHG *ne-man* – *nam* – *nāmun* – *ginoman* ‘take’ (class IV) and *geban* – *gab* – *gābum* – *gigeban* ‘give’ (class V) vs. OHG *helfan* – *half* – *hulfum* – *giholfan* ‘help’ (class III). There is virtually no disagreement that the lengthened grade in class IV is a secondary formation after the model of class V (see e.g. Matzel 1970: 6; Bammesberger 1986: 55, 1994: 19; Mottausch 2000: 45; Schumacher 2005: 598 and Ringe 2006: 187).⁸³ However, the origin of

83. As Mottausch (2000: 45) remarks, the main arguments for this view are the attested regular zero grades in the preterit-presents (e.g. Goth. *munum*, *skulum*) and deverbal nouns (e.g. OE *ierf-numa* ‘heir’, OHG *sigi-nomo* ‘winner’). Moreover, the similarity in root structure between classes IV and V (CeR- vs. CeO-), and the fact that class IV comprises not even half as many verbs as class V (19 verbs vs. 58) serve as an additional motivation for an analogical development of the lengthened grade in class IV.

the lengthened grade in class V is still not sufficiently explained. Moreover, the irregular full grade in the past participle of class V has not received much attention. In addition, little has been made of the fact that several verbs that belong to class V because of their root structure actually have attestations with zero grade in the past participle instead of full grade, e.g. OHG *gisprohhan* ‘spoken’, sometimes with parallel full grade forms in other dialects, e.g. OE *sprecen* ‘speak’.⁸⁴

This investigation of the irregular ablaut grades in classes IV and V starts with the phenomenon of the full grade past participles, in relation to the zero grade participle formations in some class V verbs, for instance OHG *gisprohhan*. The traditional explanation is that the zero grade variant developed after the model of verbs with a sonorant preceding the root vowel and two root-final consonants, such as OHG *brestan* ‘burst’, which regularly pattern with class III (see e.g. Braune 2004b: 283). However, this seems doubtful, as it is unclear why these verbs did not adopt the zero grade preterit plural at the same time, i.e. e.g. OHG *brestan* – *brast* – *brustum* – *gibrostan* (class III) but *treffan* – *traf* – *trāfum* – *gitroffan* ‘hit’. In fact, what all these verbs have in common is a root-initial consonant cluster that includes a sonorant.

This constellation allows the development of a participle with zero grade more or less *lautgesetzlich*: a zero grade form regularly yields ⁺*uR*, i.e. Gmc. ⁺*breka-* ‘break’ with an original participle Pre-Gmc. ⁺*b^hrgonós* > Gmc. ⁺⁺*burkanaz*. Assuming subsequent metathesis for reasons of paradigm uniformity, this results in Gmc. ⁺*brukanaz* (Goth. *brukans*) with regular lowering in all other dialects, e.g. OE *brocen*. This development was already described by Bammesberger (1986: 57) using ⁺*breka-* as an example (cf. also Ringe 2006: 187). However, for most of the verbs that possess a root-initial consonant cluster with a sonorant, and that are consequently expected to belong to class V due to their root structure (root-final obstruent), past participles with zero grade instead of *e*-full grade are attested (see Seebold 1970). The only group of verbs in class V that display a stable class V participle, i.e. with full grade only, are verbs with the root structure CeO-, such as Gmc. ⁺*geba-* ‘give’, ⁺*meta-* ‘measure’.⁸⁵ Thus, it is suggested here that the development assumed by Bammesberger for ⁺*breka-* ‘break’ originally took place in all verbs with the root structure CReC-. Further-

84. Textbooks of dialects in which the zero grade variant exists, usually place the relevant verbs in class IV without further comment (cf. e.g. Braune 2004b: 283).

85. O denotes ‘obstruent’.

more, for verbs with a single root-initial sonorant, in principle the same process is to be expected, as Mottausch (2000: 53) notes.⁸⁶ The conclusion that may be drawn from this is that the attestations with a reflex of the zero grade, such as OHG *gisprohhan*, are likely to have retained the original state of affairs, whereas forms with full grade (e.g. OE *sprecen*) represent the regularized variant, and not the other way around.

Two hypotheses have been advanced to explain the *e*-full grade in regular class V past participles. According to Prokosch (1939: 170), the older view considers this ablaut grade as a “restoration of the stem vowel in analogy with the present” because the regular zero grade was impossible for verbs with a CeO-structure, at least after the fixation of the accent to the root syllable. This view is supported by the past participles of class VI and the reduplicating verbs, all of which display the ablaut grade of the present stem, as e.g. Laker (1997: 112) points out. By contrast, the second hypothesis posits that the *e*-grade is the reflex of an earlier reduced grade (cf. Prokosch 1939: 171; Seebold 1970: 342 and Meid 1971: 52). However, this is an *ad hoc* assumption, especially as it is unclear why in class VI, which largely has an identical consonantal root structure, the reflex of a putative reduced grade would yield *a* in contrast to *e* in class V. Thus, it seems preferable to assume that verbs whose zero grade resulted in phonotactically peculiar syllable onsets (e.g. ⁺*gb-* : ⁺*geba-*) simply used the vowel of the lexical stem, i.e. the present, as a substitute, instead of assuming a mysterious reduced grade that is insufficiently supported.

In spite of the vast amount of literature on the lengthened grade in the preterit of class V, there remains considerable disagreement with regard to its development. In addition, the following facts have largely gone unnoticed. First of all, it has to be noted that verbs with a root-final consonant cluster do not possess a lengthened grade preterit form at all. Instead they exhibit the pattern of class III – a fact that has been neglected in the past, if noticed at all (see 3.1.5 above). As almost all of these verbs possess root-initial consonant clusters including a sonorant, a class III preterit plural develops more or less *lautgesetzlich* following Bammesberger’s proposal given above for ⁺*breka-* ‘break’ (the existence of reduplication in the pret-

86. Mottausch (2000: 53) points out that ⁺⁺*umtanaz* has to be expected *lautgesetzlich*, but assumes that this form was replaced by ⁺*metanaz* in analogy to OeO-verbs (e.g. ⁺*geba-*) at an early stage. However, for the development suggested here, this is irrelevant. The fact that ReO-verbs show no traces of the original zero grade may, however, be taken as an indication of an early replacement.

erit plural can be neglected here).⁸⁷ Second, verbs with the same root-initial structure, i.e. C(C)R-, but with only one root-final consonant, e.g. Gmc. ⁺*spreka*- ‘speak’, display lengthened grade in the same manner as verbs with a CeC-root structure, although the same class III plural form (i.e. with zero grade) would have developed regularly. In addition, these verbs often possess zero grade participles. Third, verbs with a CeC-root likewise exhibit only lengthened grade preterit plural forms and full grade past participles. Fourth, the only verb with a regular lengthened grade in the preterit plural is Gmc. ⁺*eta*- ‘eat’ (see 3.1.8.5 below).

- (3) Class V preterit plural forms and root structure (cf. Seebold 1970)
- a. C(C)eOO-, e.g. Gmc. ⁺*flehta*- ‘plaid’, OHG *fluhtun* (cf. class III)
 - b. C(C)ReO-, e.g. Gmc. ⁺*spreka*- ‘speak’, OHG *sprāhun* (Z-part.)⁸⁸
 - c. CCeO-, e.g. Gmc. ⁺*kweþa*- ‘speak’, OHG *quādun* (no Z-part.)
 - d. CeO-, e.g. Gmc. ⁺*geba*- ‘give’, OHG *gābun* (no Z-part.)
 - e. ReO, e.g. Gmc. ⁺*meta*- ‘measure’, OHG *māzzun* (no Z-part.)

This data suggests that two processes have to be separated in the genesis of class V. To begin with, verbs with an initial cluster that includes a sonorant (the vast majority of 3a and all verbs in 3b) form a zero grade preterit plural similar to class III but with metathesis to restore the root-initial cluster, i.e. ⁺*fulht*- > ⁺*fluht*-, ⁺*spurk* > ⁺*spruk*-. Verbs with a root-final consonant cluster then pattern with class III (recall that these verbs also possess a zero grade past participle), as they have a heavy root syllable in common. Consequently, they cannot be considered part of class V. The fact that also ⁺*feh**ta*- ‘fight’, despite the lack of a root-initial cluster with a sonorant, shows a class III ablaut pattern – just like the other verbs with a root-final cluster – strongly supports this view. Although the textbooks usually acknowledge that class III contains some verbs with two root-final consonants, usually a sonorant preceding the root vowel is seen as a prerequisite. Thus, Gmc. ⁺*feh**ta*- is generally seen as an exception. However, the assumption that class III simply comprises all CeCC-verbs, which is advanced here, accounts quite nicely for the “exceptional” behaviour of ⁺*feh**ta*-. Another case is ⁺*pehsa*-, which is only attested in MHG *dehsen*

87. In fact, almost all verbs of the type in (3a) usually show metathesis. The Old English forms with a postnuclear sonorant like *berstan* ‘burst’ are due to a second process of metathesis that took place at a later stage, which can be demonstrated by the absence of breaking, i.e. *berstan* but *weorpan* ‘throw’ (see Brunner 1969: 299).

88. Z-part. means that a ‘zero grade participle’ of a particular verb is attested.

‘swing flax’, where it belongs to class IV. This is clearly to be interpreted as a secondary development, as it is to be expected that Gmc. ⁺*behsa-* ‘swing flax’ was originally part of class III. This classification is suggested by the parallel cases of ⁺*flehta-* and ⁺*fehtha-* as well as the unambiguous zero grade past participle, which could not have arisen regularly if the verb had originally been placed in class V because the root does not contain a sonorant. Note that it is irrelevant that CReOO-verbs such as ⁺*bregda-* ‘draw, pull out’ developed a class III pattern regularly and CeOO-verbs like ⁺*fehtha-* ‘fight’ did so analogically because they all consistently pattern with class III in all Germanic dialects, as do in fact all other strong *e*-verbs with a root-final consonant cluster. It thus seems preferable to alter the defining root structure of class III rather than to maintain the old formula (CeRC-), which means noting the C(R)eO-group as exceptional and not being able to convincingly explain the class assignemt of ⁺*fehtha-* (see also van der Rhee 1973: 26 and Hempen 1988: 96–100).

After the breakaway of the (3a)-verbs, verbs in (3b) have an ablaut pattern that is identical to that of class IV before the introduction of the lengthened grade (cf. the preterit-presents, e.g. ⁺*kann-* : ⁺*kunn-* ‘can’). By contrast, CeO-verbs, such as ⁺*geba-* ‘give’ and ⁺*meta-* ‘measure’, behave differently, as the regular zero grade leads to forms in which the root does not form a syllable, which in turn results in peculiar syllable onsets once reduplication is lost, e.g. Pre-Gmc. ⁺*g^heg^hb^hmé* > ⁺*g^hb^hmé*.

In the next step, all verbs with a single root-final consonant (this includes class IV verbs) *acquire* a lengthened grade preterit, even though some of the verbs in (3b) keep their original participles (i.e. they exhibit a class IV pattern). However, as mentioned above, verbs with a root-final cluster, i.e. a heavy root syllable, retain their complete class III pattern. Furthermore, some of the CReO-verbs with original zero grade participles (e.g. ⁺*spreka-* ‘speak’) subsequently develop forms with full grade in analogy to CeO-verbs (e.g. OE *sprecen*). The process assumed here suggests that a significant proportion of the lengthened grade preterit plural forms in class V (namely those belonging to CReO-verbs) are likely to be the result of a secondary development at a pre-Germanic stage that replaced the regular zero grade formations.⁸⁹ It has to be emphasized again that CeOO-verbs

89. However, whether CeO-verbs (⁺*geba-* ‘give’, ⁺*meta-* ‘measure’) initially inserted the present stem vowel also in the preterit plural, like in the participles, and subsequently developed the lengthened grade, as e.g. Mottausch (2000: 53) and others have posited, cannot be ascertained, since there are no traces that would support such an assumption. The argument advanced by Mottausch

are exempt from this process and maintain their original zero grade forms.⁹⁰

After this review of the data, let us now turn to the explanation of the lengthened grade in the C(C)eO- verbs of class V. The relevant approaches can broadly be divided into phonological and morphological proposals. Proponents of the phonological approach generally suggest that the lengthened grade forms are the result of some kind of phonological process involving the reduplicative syllable. There exist two variations of this hypothesis.

The first is based on the assumption of a development of Pre-Gmc. $^{+}g^{h}eg^{h}b^{h}mé > \text{Gmc. } ^{+}g\bar{e}_1bum$, as the non-syllabic root was problematic (cf.

(2000: 53) that this is likely because the general rule in classes I to V is that the ablaut grade of the preterit plural stem is identical to that of the past participle cannot substantiate this claim. Instead, it could be argued that another rule of the system requires the vowel of the present stem to be different from that of the preterit plural stem, which in fact seems to ‘outrank’ the one mentioned by Mottausch. This can be seen from the fact that there is no ablaut class that does not unambiguously differentiate the stem of the present from that of the preterit plural. On the contrary, a lack of identity in ablaut grades between preterit plural and past participle is the norm in classes IV, V and VI. In addition, the attested present plural forms of Gmc. $^{+}mag-$ ‘be able’ in Old Icelandic and Old Frisian displaying *e* as the root vowel cannot be seen as evidence because it seems likely that they are original subjunctive forms with regular *i*-umlaut $^{+}a > e$ (cf. Birkmann 1987: 230).

90. Following Seebold (1970: 57), Gmc. $^{+}seh^{w}a-$ ‘see’ possesses a CeC-structure, since it goes back to Pre-Gmc. $^{+}sek^{u}$. For Gmc. $^{+}fregna-$ ‘ask’ forms with zero grade are attested, e.g. OE *frugnon*, but also forms with *e*-full grade, e.g. ON *fregenn*. This verb is usually reconstructed as having a present formation with a nasal suffix, i.e. Pre-Gmc. $^{+}prek\bar{n}-$, which explains the diverging class allocation in the Germanic branches: class V in Gothic and Old Norse and class III in West Germanic. However, regardless of its original allocation, it is to be expected that $^{+}fregna-$ behaved like $^{+}breka-$, developing a regular zero grade form in the preterit plural and the past participle. In principle either allocation is conceivable: historically $^{+}freg-na-$ is to be expected to belong to class V (one root-final consonant), but, as it is doubtful that the inherited nasal suffix was perceived as a stem forming suffix in Proto-Germanic times, it is also possible that a segmentation $^{+}fregna-$ caused the verb to be placed in class III. Since this study argues that the inherited stem forming suffixes were defunct at the Germanic stage, the latter view is adopted here. This is supported by several *-sk*-formations, such as $^{+}leska-$ ‘quench’ and $^{+}preska-$ ‘thresh’, which are stable members of class III.

e.g. Streitberg [1896] 1963 and others).⁹¹ Schumacher (2005) formulates a rule that generates Pre-Germanic lengthened grade plural forms of CeO-roots. It is motivated by the fact that the zero grade plural form of Pre-Gmc. $^{+}g^{h}eg^{h}-b^{h}mé$ would have had a reduplicative syllable whose structure was banned by the constraints on Indo-European roots (roots of the type $C_{me}C_{m-}$ i.e. with identical consonants preceding and following the nucleus). Consequently, the root-initial consonant was deleted and the *e* of the reduplicative was lengthened by compensation. However, although there is no immediate way to disprove these proposals, they are certainly *ad hoc*, since neither any of the related languages nor Germanic itself provide any supporting evidence. As has been noticed before (e.g. Matzel 1970: 2; di Giovine 1995: 122 and Laker 2001), forms like Skrt. *paptimá* ‘we have flown’, Gk. *πέφνε* ‘slew’ – both structurally identical with Pre-Gmc. $^{+}g^{h}eg^{h}b^{h}mé$ – demonstrate that neither weak alternants of CVO- roots nor reduplicative syllables that violate the constraints on Indo-European root structure seem to constitute a problem, at least in related languages.⁹² Moreover, class VI verbs with a CVO-structure display $^{+}\bar{o}$ in the preterit plural and not $^{+}\bar{e}_i$, despite also possessing a non-syllabic root and reduplicatives that violate the above-mentioned constraint on root structure. This

91. A recent study advancing a variation of this contraction hypothesis is presented by Niepokuj (1996). Her approach is based on the assumption that reduplication in the Proto-Indo-European perfect was basically optional and that it preferably occurred in zero grade forms of TeK-roots but not in the singular because it was sufficiently characterized by o-grade of the root. This “split paradigm” was simplified when the reduplicated plural was contracted, resulting in a long vowel (Niepokuj 1996: 131). Niepokuj (1996) adduces several arguments for her view which, however, are difficult to reconcile with the diachronic facts. In particular, there is no reason to assume the split paradigm for Indo-European as Niepokuj (1996: 133) does in a bid to explain the occurrence of lengthened grade preterits only in the plural. This is shown by e.g. the Latin perfects with a long vowel in the singular. Examining the Germanic data, the assumption of such a split paradigm is flatly contradicted by the reduplicating verbs, which show reduplication in the singular as well as the plural. However, even if Niepokuj’s reconstruction of the Pre-Germanic, Pre-Celtic and Pre-Italic perfect were correct, the process of levelling she assumes is insufficiently motivated. Niepokuj’s (1996: 131) argument that the situation of a split paradigm was “ripe for levelling” is more like a sweeping claim than a solid argument. In particular this does not explain why this process should have occurred only in classes V and VI but not in classes I to III.

92. In addition, it is doubtful whether the restrictions that applied to Indo-European roots were valid for the reduplicatives at all.

divergent behaviour requires at least an explanation for the different development of class VI or a reason why the proposed ‘contraction’ or compensatory lengthening resulted in two different root vowels in spite of a comparable phonological environment. In addition, although they display a very similar root structure, reduplicating verbs like Gmc. ⁺*sē₁a-* ‘sow’ do not exhibit any contraction of Pre-Gmc. ⁺*sesh₁mé* > Gmc. ⁺⁺*sē₁um* either. Instead, verbs of this structure retain reduplication, as evidenced by Goth. *saísô*. All these arguments strongly suggest that the proposed ‘contraction’ and/or compensatory lengthening did not take place.

The second hypothesis, advanced by Hirt (1931: 66, 1932: 146), which several authors have followed, posits a loss of root-internal and generalized ⁺*z/s* that caused compensatory lengthening as in L *sēdimus* ‘we have sat’ (<⁺*se-zd-*). However, as e.g. Mottausch (2000: 45) correctly points out, this explanation is precluded because in consonant clusters like *-zd-*, *z* remains stable throughout the Germanic period.

Apart from these phonological approaches, there exist morphological hypotheses, proposing either that the lengthened grade plural forms do not go back to Pre-Germanic reduplicated perfects or that the regular plural formations were replaced by some forms with lengthened grade. They are examined in the following sub-sections.

3.1.8.1. *Class VI as a model*

The assumption that the regular preterits with *ō*-grade in class VI served as the model for the lengthened grade preterit plural in class V, which has been advanced by several authors (see e.g. Kuryłowicz 1968: 290–297; 1968: 290–291; Meid 1971: 51 and Bammesberger 1986: 56), has been rejected in several studies (cf. Kortlandt 1992: 101 and Mottausch 2000: 47), and consequently is not discussed in detail here. The central argument against this proposal is that it is unclear why only the plural should have taken over the lengthened grade but not the singular, resulting in ⁺⁺*gē₁b-* instead of ⁺*gab-* (cf. Kortlandt 1992: 101; Bammesberger 1996: 36 and Mottausch 2000: 47). In addition, the proposed adoption of only the quantity is left unexplained. It is difficult to see how the plural ⁺*ō* from class VI should have been taken over as ⁺*ē₁* by class V.

3.1.8.2. The nominal system as a source

Bammesberger (1994: 19) advances a different explanation of the origin of the lengthened grade preterit in class V:

Die Dehnstufe bei **sēt*- und anderen Verben der Klasse V, die dann auch auf Klasse VI übertragen wurde, wird sich in erster Linie aus dem Nominalsystem erklären lassen.⁹³

Bammesberger (1996) further develops this idea, noting that abstract nouns derived from class IV and V strong verbs (CeC-roots) usually have lengthened grade, e.g. ⁺*sprēki* ‘speech’ from ⁺*spreka*- ‘speak’, ⁺*wrēki* ‘revenge’ from ⁺*wreka*- ‘pursue’, whereas abstract nouns derived from verbs belonging to other classes often show zero grade, e.g. ⁺*biti* ‘bite’ from ⁺*beita*- ‘bite’, ⁺*druzi* ‘fall’ < ⁺*dreusa*- ‘fall’. Hence, Bammesberger (1996: 39) assumes that verbal abstracts were formed on the basis of the weak stem. He postulates that “*ē* in the weak alternant of Germanic verbs of classes IV and V arose in class V, because the zero grades of roots C₁eC₂ ... would have resulted in a vowelless cluster” (Bammesberger 1996: 40). In other words, as class V verbs could not form a weak alternant (basis for the preterit plural) with zero grade, they imported the root vowel from verbal abstract formations that had earlier been derived from them, the verbal source. However, this approach leaves some significant problems unsolved. First of all, the development of the lengthened grade in the verbal abstracts is not motivated but posited *ad hoc*. Moreover, it seems difficult to imagine that verbs, after having spawned nouns in which the problematic zero grade is replaced by a rather mysterious lengthened grade, subsequently and quite suddenly – there are no traces of an original nominal formation – take over this innovation. Furthermore, the existence of preterit-presents with zero grade (class IV) demonstrates that, at least in class IV, the possibility of a zero grade formation must have existed.⁹⁴ To sum up, the approach presented by Bammesberger (1996) cannot convincingly

93. ‘It is to be expected that the lengthened grade in **sēt*- and other verbs of class V, which subsequently was transferred to class VI, can be explained with the help of the nominal system.’

94. Hinderling (1967: 145) also notes zero grade nouns derived from class IV verbs and points out that abstract nouns in ⁺*-i* belonging to class V verbs are only sparsely attested. He therefore argues against a mandatory zero grade in abstract nouns in ⁺*-i* (see Bammesberger 1990 for a survey of the different ablaut grades occurring in *i*-stems).

explain the occurrence of the lengthened grade in the preterit plural of class V.

3.1.8.3. *Replacement by aorist formations*

The various aorist formations advanced to explain the lengthened grade preterit plural forms are the sigmatic aorist (Cowgill 1957: 46–56), an aorist passive formation with lengthened grade (Sverdrup 1927 and Prokosch 1939: 162), and athematic aorists with lengthened grade (Peters 1980: 313–314). All of these attempts are rejected by Mottausch (2000: 46–47), who says that the various forms adduced are either problematic from a reconstructional point of view or insufficiently supported by the attestations. Nevertheless, this can be expressed even more substantially, as the main problem that all these hypotheses face is the fact that they do not match the requirements posed by the Germanic data. As Laker (2001: 24) points out, the effect of Verner's Law visible e.g. in OHG *was* 'was' vs. *wārun* 'were' presupposes the position of an accentual differentiation at a Pre-Germanic stage, namely an accented stem in the singular and an unaccented stem in the plural. This rules out the sigmatic aorist and potential thematic aorists because they do not possess this accentual differentiation. The problem with athematic conjugations is that, according to what is known about Indo-European verbal morphology, they show paradigmatic ablaut that distinguishes a strong from a weak stem – usually with accentual differentiation. However, there is no known formation that makes this distinction while at the same time possessing an unaccented lengthened grade in the weak stem. To propose one would be an unwarranted *ad hoc* solution. Although an unaccented lengthened grade itself is not completely inconceivable for the parent language, a type of verbal stem formation with accentual differentiation and lengthened grade in the unaccented, i.e. weak, stem is difficult to imagine and not at all supported by the relevant attestations.

Apart from these morphological problems, it is also unclear how exactly the process of replacement would have worked. As explained above, until the loss of reduplication and the transfer of the main stress to the root the perfect plural stem was unproblematic. A potential replacement of the original plural by an aorist formation presupposes that the aorist still existed as a morphological category, or that at least enough relic forms survived. Furthermore, it necessitates the assumption that exactly those verbal roots in class V formed a lengthened grade aorist, if not an analogical transfer from other roots under even more obscure conditions is to be pos-

ited. As a result of these considerations, it is highly unlikely that the lengthened grade preterit plural stem of class V goes back to an aorist formation.

3.1.8.4. Replacement by an alternative perfect formation

Karl Brugmann's (1913a, 1916) idea that there are two possible perfect formations in Proto-Indo-European, one with reduplication and inner-paradigmatic ablaut and the other without reduplication but with lengthened grade and without inner-paradigmatic ablaut, has been used to explain the Germanic lengthened grade in class V (see e.g. Matzel 1970: 6 and Meid 1971: 48). Accordingly, the competing formation with lengthened grade could only survive in class V because the regular formation with zero grade was impossible to form, and an assumed secondary *e*-full grade (cf. fn. 93) did not provide a strong enough contrast to the present stem. To support his proposition Matzel (1970: 5) adduces the well-known Latin parallels *uēnimus* 'we have come' and *frēgimus* 'we have broken'. Anticipating the counter-argument that the lengthened grade in the Latin verbs occurs throughout the paradigm, Matzel (1970:5–6) draws attention to several by-forms of Gmc. ⁺*setja*- 'sit' with lengthened grade, namely OHG *gisaaz*, OS *sát* and OIcel. *sát*, which he views as remnants of the proposed alternative perfect formation.

However, it can be shown that this classic hypothesis runs into serious problems. First of all, the Germanic evidence for a Proto-Indo-European preterit with lengthened grade that Matzel adduces can hardly be considered sufficient. It is highly questionable whether the Northwest-Germanic (there are no lengthened grade forms of ⁺*setja*- attested in Gothic, cf. Schumacher 1998: 188) by-forms of one verb that displays close structural similarities to the only verb with a regular lengthened grade in the singular and the plural, Gmc. ⁺*eta*- 'eat', is sufficient to warrant Matzel's claim. It seems more likely that the forms cited by Matzel are secondary, maybe even influenced by the uniform ablaut grade of the preterit in class VI, as suggested by Schumacher (1998: 187). Moreover, there is strong indication that the lengthened grade preterits go back to a perfect formation that is found in other (West-) Indo-European languages, and are thus the result of individual developments rather than belonging to a specific isogloss (see also e.g. Rix 2001: 22–23 and di Giovine 1995: 125). The main argument against the form proposed by Matzel is similar to that advanced against the aorist-hypotheses discussed above. The type of proposed stem formation

(i.e. a perfect without reduplication and inner-paradigmatic ablaut but with an alternating accent and lengthened grade in the unaccented stem) that has to be assumed because of the effect of Verner's Law in class V verbs (e.g. OE *wæs* 'was' : *wæron* 'were', *cwæp* 'he spoke' : *cwædon* 'we spoke') does not fit into the morphological system of Indo-European at all.⁹⁵ Alternating root accent is only found in athematic paradigms, where it is usually accompanied by ablaut, i.e. a strong vs. a weak stem. It is hardly plausible that the lengthened grade occurred in unaccented position, especially given that all known stem formations with lengthened grade in the strong (accented) alternant usually have full grade in the weak (unaccented) stem. In addition, the lack of reduplication is difficult to reconcile with the evidence on the Indo-European perfect, strongly suggesting obligatory reduplication (see 1.3.1 above). Moreover, one would have to explain the distribution of this alternative perfect because it is unlikely that one root could have had both formations available at the same time (cf. the previous sub-section 3.1.8.3, in which this problem is discussed for the aorist).⁹⁶

To sum up, the existence of an alternative perfect formation with lengthened grade in Indo-European is highly doubtful. The reasons for this are the evolution and the formation of the Indo-European perfect, as well as the requirements of the verbal system. Moreover, the attestations do not prove the existence of a long-vowel perfect for the Indo-European period. It seems therefore more likely that some post-Indo-European development took place, perhaps involving the special structural circumstances of class V. This may then explain the Germanic situation, but it may not hold true for other long vowel preterits in the related languages.

95. Already Flad dieck (1936: 349) – despite his general support for the alternative perfect formation with lengthened grade described in the main text – noticed the accent problem (“Die Akzentlage ist hier zweifelhaft”).

96. Brugmann's (1913b: 433–435) assumption that CeC-roots formed a perfect with lengthened grade and without reduplication due to an emergency situation (“lautlicher Notstand”) is not convincing. As section 3.1.8 above illustrates, there are plenty of zero grade formations of CVC-roots attested. Furthermore, Meid's (1971: 53) position, according to which this proposed perfect type is an evolutionary step in the development of the standard perfect, is rather speculative and unsubstantiated.

3.1.8.5. Analogical spread

In a nutshell, this hypothesis proposes that a lengthened grade first developed regularly in the preterit of Pre-Gmc. ⁺*ed-* ‘eat’ (see Kortlandt 1992, Schumacher 1998, 2005; Mottausch 2000 and Ringe 2006). In a subsequent step the remaining verbs in class V took over the lengthened grade in the plural, as the loss of reduplication and the transfer of the main stress to the root syllable necessitated a nucleus for the zero grade forms of Pre-Gmc. ⁺*g^hb^hmé* (Gmc. ⁺*geba-* ‘give’), ⁺*ftmé* (Gmc. ⁺*feta-* ‘fall’), etc.

The first issue addressed here is the origin of the lengthened grade in the preterit plural of Pre-Gmc. ⁺*ed-*. The following hypotheses have been advanced.⁹⁷ Under the impression that the root IE ⁺*h₁ed-* did not form a perfect, the first hypothesis proposes that Gmc. ⁺*ētum* goes back to a contracted augmented imperfect (e.g. Bammesberger 1986: 57). However, as Schumacher (1998: 185) points out, Hom. Gk. *ἐδῆδώς* ‘having eaten’ clearly supports the assumption of an old perfect formation for this root. Furthermore, as there are no traces of either the augment or the imperfect in Germanic, to invoke their existence just for the explanation of this phenomenon is *ad hoc* (cf. also Mottausch 2000: 50). Assuming that the zero grade presented a problem for CeC-roots, the second hypothesis posits that an anaptyctic vowel was inserted to make the formation of a root syllable possible – like in the participle (see also 3.8.1.4 above). The resulting form Pre-Gmc. ⁺*e-ed-* underwent a process of contraction yielding Gmc. ⁺*ēt-* (see e.g. Matzel 1970: 3–4 and Mottausch 2000: 51). This is rather unlikely, because, as argued above, the zero grade in a reduplicated stem is not prob-

97. It has to be noted that all attestations of the preterit of this verb display the lengthened grade not only in the plural but also in the singular (see e.g. Seebold 1979: 170). The exact development of the lengthened grade in the singular is a debated issue. Usually the starting point is Pre-Gmc. ⁺*h₁eh₁ód-* > ⁺*ead-*, and Gmc. ⁺*ēt* is usually seen as the result of contraction (e.g. Mottausch 1994: 135, 2000). Kortlandt (1992: 102) doubts that a transparent Pre-Gmc. ⁺*e-ad-* would have been simplified. However, there are several cases in related languages in which exactly this phenomenon occurs, in spite of productive reduplication, e.g. in Avestan (cf. Hoffmann and Forssmann 2004: 78–79). Schumacher (1998: 186) points out that the result of the assumed contraction is more likely to be Pre-Gmc. ⁺*ōd-*, but admits that ⁺*ēd-* is also a possible option. As a solution, Th. Vennemann (Munich, p.c.) suggests a process of monophthongization after the loss of the syllable boundary. However, for the purpose of this study the exact development of the lengthened grade in the singular of Pre-Gmc. ⁺*ed-* is of minor significance.

lematic at all. Moreover, this assumption is also unnecessary, as a lengthened grade perfect plural stem develops *lautgesetzlich* after the loss of the laryngeals and before reduplication is given up (see Schumacher 1998: 186 and Ringe 2006: 185): Pre-Gmc. $^+h_1eh_1dmé > \text{Pre-Gmc. } ^+ēdmé$.

From the discussion so far it has become clear that the origin of the lengthened grade in the plural of Gmc. $^+eta-$ is unproblematic. However, there are several other issues that need to be examined in more detail: First, it has to be clarified whether Gmc. $^+eta-$ can really be viewed as a sufficient basis for an analogical spread. Second, an explanation has to be found for why the lengthened grade plural only spread to *e*-verbs with one root-final consonant but not to those with two (in particular $^+feh_1ta-$, in which a zero grade formation resulted in a non-syllabic root). This also includes the question why verbs with an unproblematic zero grade, such as Gmc. $^+breka-$: $^+brukum-$ and $^+nema-$: $^+numum-$ (cf. 3.1.8 above), took over the lengthened grade. Both issues are closely connected with the spread of the *e*-grade participles, discussed in 3.1.8 above. Third, an explanation has to be found for why the lengthened grade only spread in the plural but not in the singular.

The first two problems are closely related and will be discussed together. To begin with, the underlying motivation for the spread of the lengthened grade in CeC-verbs seems plausible for the following reasons. It is obvious that after the loss of reduplication the CeC-verbs possessed initial consonant clusters in the zero grade forms that would have been phonotactically problematic (see 3.1.8 above). In addition, the post-reduplication preterit plural form of these verbs was monosyllabic as opposed to that of all other strong verbs. Both properties would have almost certainly endangered the uniformity of the paradigm and the entire system, thus providing a credible motivation for a remedial development. By contrast, the reason for the adoption of the lengthened grade advanced by Mottausch (2000: 52) is irrelevant and unnecessary. On this account, CeC-verbs adopted the lengthened grade because the secondary *e*-full grade that had initially assumed the position of the nucleus of the root syllable did not form a sufficient contrast to the present stem. However, the insertion of an anaptyctic *e*-full grade in forms like Pre-Gmc. $^+g^hb^h mé$ after the loss of reduplication posited by Mottausch is highly speculative and completely unnecessary.

The first question is then whether it is plausible that the preterit plural of the verb Gmc. $^+eta-$ ‘eat’ was the only source from which all the other verbs took their new root vowel. Kortlandt (1992) attempted to enlarge this rather small basis to a total of five with some rather awkward constructions

which, as Mottausch (2000: 47) remarks, are supported by nothing (“durch nichts gestützt”). For example, (Kortlandt 1992: 104) suggests that Gmc. ⁺*nema-* resulted from a re-analysis of an earlier compound ⁺*gan-em-* as ⁺*ga-nem-* (⁺*ga-* is a common Germanic prefix). The root is supposed to be reflected in L *emō* and Latv. *jēmu*, whereas the re-analysed form, according to Kortlandt (1992: 104), occurs in Latv. *ñemīt*. The main problems are that Kortlandt (1992: 104) does not functionally explain the posited complex form, which would have to be of Pre-Germanic origin, since it is also supposed to have been the basis of Latv. *ñemīt*, and that he does not support its position with attestations.

Since Kortlandt’s suggestion is far too vague to be sufficient, and Ringe’s (2006: 186) claim that originally there may have been more vowel-initial verbs, of which only ⁺*eta-* survived, is not backed up by any tangible evidence either, Gmc. ⁺*eta-* remains the sole attested basis for the over-generalization of the long-vowel preterit plural forms in class V. Mottausch (2000: 48) is well aware of this problem:

[Es] ist zu klären, ob eine solche Umgestaltung von einem einzigen Verb aus denkbar ist. ... Es gibt genügend Beispiele für die Ausbreitung von Neuerungen gerade im Bereich der Verbmorphologie aus einem oder 2–3 Keimen heraus. Voraussetzung für die Vorbildfunktion ist nicht nur die große Zahl der geneuerten Formen sondern einerseits das Bedürfnis nach einer Neuerung ..., andererseits die hohe Frequenz des Vorbildes sowie die einfache Handhabung der Neuerung.⁹⁸

Mottausch (2000: 48–50) then quotes a number of cases in which a single verb acts as the source of an analogical spread, but, as Mottausch himself concedes, they all involve the verb with the meaning ‘to be’ (see also Ringe 2006: 186). Nevertheless, Mottausch (2000: 49) considers it probable that other verbs with a high frequency, such as denoting ‘eat’, could also trigger analogical spread. To support this he adds four cases where a small group of verbs were the source for morphological change. To him these four examples suffice to illustrate the thesis that “eine Neuerung eventuell nur 1–2 Vorbilder benötigt, um sich durchzusetzen, wenn die

98. ‘It has to be clarified if such a change based on a single verb is conceivable. There are enough examples for the spread of innovations originating from one or two to three seeds, particularly in the area of verbal morphology. Prerequisites for this model-function are not only the number of innovative forms, but also the feeling of a need for an innovation on the one hand, and the frequency of the model, as well as the simple handling of the innovation, on the other hand.’

genannten Voraussetzungen gegeben sind” (Mottausch 2000: 50).⁹⁹ Looking at the prerequisites (“die genannten Voraussetzungen”) Mottausch sets as a baseline for his idea, it can be said that there certainly was a need for a syllabic root in the post-reduplication plural forms. Furthermore, the number of altered forms is sufficiently high (all C(C)eC verbs), and the handling of the new form is simple enough. But what about the frequency of the model ⁺*eta*-? Admittedly, it is an everyday verb, but did it have an exceptional high frequency in discourse? Looking at the list of class V verbs provided by Seebold (1970: 56–58), there are a number of verbs that are likely to occur frequently in discourse. They denote meanings like ‘give’ (⁺*geba*-), ‘see’ (⁺*sehwa*-), ‘sleep’ (⁺*swefa*-), ‘speak’ (⁺*spreka*-), ‘be’ (⁺*wesa*-), ‘sit’ (⁺*setja*-), to name but the most striking. Thus, I find the argument that it was exactly ⁺*eta*- ‘eat’ that had an exceptional status difficult to support. No doubt, it was among the verbs most frequently used, and maybe this could have been an influential factor. But to assume that it was more frequent than e.g. ⁺*wesa*- is not necessarily convincing.

However, perhaps frequency is not the only factor, once the following facts and ensuing considerations are taken into account. As explained in (3) above, before the spread of the lengthened grade there was only a minority of verbs with a phonotactically peculiar preterit plural stem and an anaptyctic vowel in the past participle (cf. 3d, possibly also 3e). Only these verbs lacked a syllabic root in the preterit plural stem as well as a participle distinct from the present stem, in contrast to all other verbs in (3), which possessed regular zero grade formations.¹⁰⁰ As far as can be judged from the attestations, it is likely that also ReC-verbs, despite the possibility of forming a regular zero grade, introduced the *e*-grade to the participle early (cf. 3.1.8 above): there are no relic forms that could reflect an original zero grade, as e.g. in class IV participles or forms like OHG *gisprohhan*. The reason may be that the formation of a regular zero grade would have led to a much greater distortion of the root-initial structure than in CReC-verbs (e.g. ⁺*meta*- : ⁺*umtanaz* vs. ⁺*breka*- : ⁺*burkanaz*, so that a different repair strategy was used. This is particularly plausible, since ReC-verbs structurally resemble CeC-verbs far more than CReC-verbs. Therefore, at one stage all CeC-/ReC-verbs had the same paradigmatic problem of possessing a preterit plural stem with a non-syllabic root and a highly peculiar initial consonant cluster, e.g. pre-Gmc. ⁺*g^hb^hmé*, ⁺*mdmé*, and so forth. In the

99. ‘An innovation only needs perhaps one to two models in order to prevail if the requirements mentioned are given’.

100. The only attested exceptions are Gmc. ⁺*feh^ta*- ‘fight’ and ⁺*pehsa*- ‘swing flax’.

subsequent spread of the lengthened grade, root structure played a crucial role. All verbs with one root-final consonant adopted the lengthened grade, no matter whether it was a sonorant or an obstruent. However, verbs with two root-final consonants, i.e. with a heavy root syllable, did not take part in this development, instead they retained their inherited pattern with regular zero grade, which may have been motivated by the fact that an additional mora would have been against the phonotactic requirements of the system. This becomes especially clear when ⁺*feh̥ta-* ‘fight’ is considered, as this verb consistently displays a class III pattern in line with all the other verbs with this structure, in spite of the problems caused by the zero grade after the loss of reduplication. Thus, verbs with two root-final consonants actually belong to class III, whose defining root structure consequently can be reformulated as follows: CeCC- instead of CeRC-.

After the adoption of the lengthened grade in the preterit plural, the only differentiating feature within the group of C(C)eC verbs is the vowel of the past participle. Either verbs display an inherited zero grade, ⁺*u* (>⁺*o*), or a secondary *e*-full grade. The line of demarcation runs through the group with a CReC-structure, in which verbs may show either pattern in the attested languages, e.g. OE *sprecen* vs. OHG *gisprohhan*. This suggests that verbs with a root-final obstruent were more susceptible to influence from regular class-V-verbs than verbs with a root-final sonorant, probably due to the closer similarity in root structure. In fact, CeR verbs consistently retain their ablaut pattern with inherited zero grade participles, just as CeC verbs keep their pattern with secondary *e*-full grade. The fact that ‘core members’ of class V, i.e. C(C)eC-verbs, such as ⁺*spreka-* ‘speak’, ⁺*drepa-* ‘hit’, possess attestations exhibiting a class IV pattern, i.e. a zero grade past participle, argues for an underlying unity of classes IV and V. From that point of view, class IV is just a more conservative part of class V, although the attestations clearly vindicate the postulation of a distinct class IV due to stable and salient structural properties. However, the fact that the new class V pattern had the disadvantage of a non-distinctive and irregular past participle stem may be taken as an indication of the persistence of the strong verb system with its pre-defined ablaut patterns. Consequently, the lengthened grade only spread where it did not upset the system while providing a paradigmatic advantage, i.e. in C(C)eC verbs.

This discussion makes clear that class V constituted itself only after the secondary *e*-full grade had been introduced to the participle and after the superior preterit plural stem had been taken over from ⁺*eta-* ‘eat’ (assuming for the moment that this really was the source of the lengthened grade). Hence, a number of verbs traditionally placed in class V in the Germanic

daughter languages despite possessing a zero grade participle may actually be seen as members of class IV, as far as their ablaut pattern I concerned. For instance, it could be argued that OHG *sprehhan* ‘speak’ and *treffan* ‘hit’ should be viewed as belonging to class IV, since they possess a stable class IV pattern, i.e. *sprāhum* – *gisprohhan* and *trāfum* – *gitroffan*, just like *neman* – *nāmum* – *ginoman*. This would entail a re-formulation of the defining characteristics of class IV in those daughter languages, in this case Old High German. Accordingly, class IV verbs would have to be defined as possessing a liquid either directly preceding or following the radical *e* (in addition to verbs with a postnuclear nasal). However, as it has not been ascertained if these redefinitions could be applied to one of the Germanic daughter languages without having too many exceptions, this suggestion has to remain tentative.

Let us now turn to the question of why the lengthened grade only spread in the plural and not in the singular. According to Mottausch (2000: 53), attested irregular forms with lengthened singular stems (cf. also 3.1.8.4 above) suggest that occasionally analogical levelling took place, although without resulting in a lengthened grade preterit in the entire class. At any rate, it seems difficult to create a proportion yielding the attested results with *a*-full grade in the singular and lengthened grade in the plural from a model with lengthened grade throughout the preterit (recall that the regular paradigm displays *a*-full grade in the singular and zero grade in the plural). However, bearing in mind the relationship between structure and distribution of the lengthened grade, it may be assumed that the basis for the proportion was the lexical base, i.e. the present stem, rather than the stem of the preterit singular. The relevant proportion could hence be set up as a form of *analogical extension* (see Campbell 2004: 108 for the term): Pre-Gmc. ${}^+éd-o- : {}^+ēdmé = {}^+g^héd-o- : x$ with $x = {}^+g^hēdmé$.¹⁰¹ Moreover, from a system-internal point of view there is no necessity to replace a well-supported (classes I to III, i.e. the majority of the strong verbs) and salient *a*-full grade in the singular with *e*-lengthened grade. That this occurred only sporadically in the attested daughter languages without altering the entire class V ablaut pattern supports this view. The introduction of the lengthened grade to the preterit singular stem would have presented an

101. Theo Vennemann (Munich, p.c.) draws my attention to a number of verbs that rhyme with ${}^+eta-$, e.g. ${}^+meta-$ ‘measure’ and ${}^+geta-$ ‘receive, get’. It seems plausible that these verbs adopted the lengthened grade first, thereby enlarging the basis of the analogical spread.

additional complication without offering any advantage or some sort of remedy.

To sum up, the proposal advanced by Mottausch (2000) contains a few weak points. In particular, it does not explain the distribution of the lengthened grade, i.e. the fact that it is found only in the plural of verbs with one-root final consonant. The considerations presented above attempt to solve some of these problems. In particular, some light has been shed on the distributional puzzle, which also involves the question whether one verb can act as a model for the entire class.

3.1.8.6. Summary: The lengthened grade in classes IV and V

Apart from Mottausch (2000), all the hypotheses on the origin of the lengthened grade in the preterit plural stem of class V discussed above suffer from at least one fatal weakness, which makes their validity highly doubtful. Mottausch (2000) assumes a process that is at least plausible, specifically if the additional considerations presented in the previous section are taken into account.

The main results of the discussion of the lengthened grade and the *e*-full grade in classes IV and V can be summarized as follows. First, the *e*-full grade in the past participle is anaptyctic and corresponds to the root vowel of the lexical base, the present stem. Initially it is introduced to CeC- (possibly also ReC-) roots and subsequently spreads to the other verbs with one root-final obstruent. Verbs with two root-final obstruents (CeCC-) and verbs with one root-final sonorant (CeR-) escape this process. Originally, this is also valid for roots with a prenuclear sonorant as part of a consonant cluster and one postnuclear obstruent (CReC-), but roots with this structure subsequently may take over the *e*-full grade in individual daughter languages. Second, if Mottausch's (2000) hypothesis is accepted for the time being, the lengthened grade in the preterit plural stem spreads from the paradigm of ⁺*eta*- 'eat' to all verbs with one root-final consonant because this innovation represents a systematic morphological advantage without violating any phonotactic constraints of the system. In this process structural resemblance (particularly words rhyming with ⁺*eta*-, see fn. 101) and systematic requirements seem to take precedence over considerations of frequency. This can also be seen from the fact that verbs with two root-final consonants keep their inherited pattern and do not adopt the lengthened grade, even if a regular zero grade is phonotactically impossible after the loss of reduplication, as in ⁺*feh**ta*- 'fight'. Third, whatever the speed of

the spreading process, its consistency suggests an early start, probably right after the loss of reduplication in Pre-Germanic times. Fourth, the much more limited spread of the *e*-full grade in the past participle may indicate that the preservation of distinct ablaut grades for present vs. past stems has to be seen as a distinct property of the inherited ablaut system, which was not easily overridden. Fifth, in the assignment of ablaut classes a new structural constraint for class III can be formulated, namely CeCC (allowing for irregular verbs such as ⁺*fregna*- ‘ask’, cf. Seebold 1970: 58). This stands in contrast to the representation in the standard literature. There it is mentioned that class III also includes some verbs that possess root-final obstruent clusters. However, these are generally presented as exceptions, and consequently do not affect the traditional formulation of the root structure characteristic for class III. Ringe (2006: 243) mentions that “roots ending in **eCC*, where both consonants are obstruents, also belong to this class”, but does not offer an explanation. Although class IV is really only a subclass of class V, it is preferable to keep it separate, due to its stable and different ablaut pattern, which has to be posited already for Germanic, and also because it is clearly structurally definable. In class V, the existence of verbs with a class IV pattern, e.g. OHG *sprehhan* – *sprah* – *sprāhhun* – *gisprohhan* ‘speak’, has to be tied to the sonorant in the root-initial cluster.

The examination of the diachronic and distributional data sheds some light on the classic problem of the lengthened grade in the preterit plural and the full grade in the past participle of classes IV and V. However, the review of the existing hypotheses on the origin of the lengthened grade in class V has shown that this issue still needs further investigation, which hopefully will be facilitated by the results presented here.

3.2. The secondary system: Class VI

This section argues that class VI is not merely a peculiar part of the main ablaut series, but a separate system that is characterized by a different root vowel, a different ablaut pattern and possibly a different chronological development. These findings support the division into a primary and a secondary ablaut system proposed above.

3.2.1. A separate system

A reconstruction of the four stem forms of the Germanic verb ⁺*fara-* ‘go’ serves to illustrate the morphological characteristics of class VI (*Table 2*). As with *Table 1* above, this is an adaptation of the descriptions found in the literature, although it adopts a more systemic perspective.

Table 2. Traditional representation of class VI

CLASS root structure abstraction	PRES. TENSE ablaut gr. infinitive	PRET. SG. ablaut gr. 1 st sg. ind.	PRET. PL. (ind. /subj.) ablaut gr. 1 st pl. ind.	PAST PART. ablaut gr.
VI C□C- ⁺ f□r- ‘fare, go’	aF CaC- ⁺ <i>fara-</i>	oL CōC- ⁺ <i>fōr-</i>	oL CōC- ⁺ <i>fōrum-</i>	aF CaC- ⁺ <i>farana-</i>

It is obvious that this division of the ablaut pattern into four stem forms is artificial and confusing because, unlike the other five classes, class VI displays only two different ablaut grades. Consequently, this class should rather be presented as shown in *Table 3* with only two stem forms:

Table 3. Alternative representation of class VI

CLASS root structure abstraction	PRES. TENSE PAST PART. ablaut gr. infinitive past part.	PRETERIT ablaut gr. 1 st sg. ind. 1 st pl. ind.
VI C□C- ⁺ f□r- ‘fare, go’	aF CaC- ⁺ <i>fara-</i> ⁺ <i>farana-</i>	oL CōC- ⁺ <i>fōr-</i> ⁺ <i>fōrum-</i>

This demonstrates that the traditional representation of class VI merely as a variant of the other five classes is inadequate. As can be seen from the comparison of *Tables 1, 2* and *3*, the superficial parallelism of the primary system and the secondary system is created by an identical representation on the graphic level, which, however, does not reflect the reality of class VI, as this class differs markedly from the remaining ablauting verbs by mainly two features.

First, the basic root vowel is always *a*, followed by either a single consonant or a cluster in which the first element is an obstruent, e.g. ⁺*baka*- ‘bake’, ⁺*waska*- ‘wash’ and ⁺*wahsja*- ‘grow’. By contrast, the *a*-verbs among the reduplicating verbs either possess diphthongal roots, e.g. ⁺*auka*- ‘augment’ and ⁺*laika*- ‘play’, or root-final consonant clusters with a sonorant as the first element, e.g. ⁺*falpa*- ‘fold’ and ⁺*blanda*- ‘mix, blend’ (see also van Coetsem 1990: 24).¹⁰²

Second, the ablaut pattern itself is obviously distinct from that of the primary system, appearing a great deal simpler due to the absence of the characteristic and inherited difference in ablaut grade between preterit singular and plural (see also van der Rhee 1973: 15–16). One similarity between a part of the primary system, the secondary system and the reduplicating verbs has to be noted, nonetheless. This is the identical ablaut grade of the past participle and the present stem, which occurs in regular class V verbs as well as throughout class VI and the reduplicating verbs.

Thus, class VI has to be viewed as possessing a distinct ablaut system (see also Fullerton 1977: 81 and Kortlandt 1994b: 69). This position is further strengthened by the fact that Germanic strong verbs can be categorized into two systems on the basis of their root vowel, namely into *e*- and *a*-verbs (cf. van Coetsem 1990). The simplified ablaut pattern as well as the cruder sub-differentiation concerning root structure (CVC-verbs form

102. Although the exceptional cases of diphthongal roots in class VI can be easily pointed out, the origin of their ablaut pattern and their class assignment are harder to explain. For Gmc. ⁺*standa*- ‘stand’ the literature generally reconstructs an original *n*-infix-present, which can be inferred from the attested preterit forms in e.g. Goth. *stōþ*, OE *stōd*. Apparently, the integration into class VI is based on the forms without infix, which is unusual because the assignment of ablaut classes normally follows the root structure of the present stem. In addition, some *-jan*-presents in class VI exhibit a diphthongal root ⁺*au*, e.g. ⁺*dauja*- ‘die’, ⁺*klauja*- ‘scratch’, though ⁺*au*-roots are usually found only among the reduplicating verbs. However, it has to be noted that exactly this kind of root (⁺*au*, with *-jan*-suffix) is not found among the reduplicating verbs at all, though reduplicating *-jan*-verbs in general are attested (e.g. ⁺*arja*- ‘plough’, ⁺*wēlja*- ‘blow’). Nevertheless, despite the fact that the categorization of verbs like ⁺*dauja*- and ⁺*klauja*- is fairly clear-cut, the motivation for an integration into class VI rather than into the reduplicating group is poorly investigated. It has been assumed that an inflection according to class VI is secondary (e.g. Seebold 1970 s.v. *klau-ja*-), particularly as some verbs appear to be derived from *e*-roots (see main text), but clearly this is insufficient as solution to this problem.

two classes in the primary system, i.e. classes IV and V, as opposed to one in the secondary system, namely class VI) strongly argue for a more detailed investigation of the origin of this system, which is the subject of the following section.

3.2.2. Origin of class VI

Any analysis of class VI has to accommodate the deviant ablaut pattern as well as a number of additional facts. First, there is the Germanic root vowel, which can in theory be derived from IE ^+a , $^+h_2/h_3+e$, ^+o and $^+\varnothing$ ¹⁰³, not to mention various forms of levelling (see Austefjord 1987: 168 and Ringe 2006: 188). This has implications for the reconstruction of verbal roots and present stem formations in the parent language, and consequently influences the set-up of class VI. For instance, to reconstruct the root vowel of the ancestral form of Gmc. $^+fara-$ ‘go, fare’, in principle all the above-mentioned possibilities have to be taken into consideration. However, once the etymological facts are examined, it becomes clear that, for example, the reconstruction from a putative primary verbal root IE $^{++}par-$ is precluded because this root is not attested. Rather, following the general opinion, the starting point is the primary root IE $^+per-$ ‘pass/go through’, an option that also rules out any laryngeal derivation. Consequently, a type of verbal stem formation has to be found that displays IE ^+o in order to arrive at Gmc. ^+a (excluding possible analogical developments for the moment), for which usually a reduplicated present with *o*-vocalism is adduced (see e.g. Rix 2001: 472–473). From this it follows that a hypothesis on the origin of class VI has to convincingly account for the Germanic root-vocalism and its potential reconstructive plurality. Second, it cannot be forgotten that the effect of Verner’s Law visible in e.g. OHG *sluoh* vs. *sluogum* ‘hit, slay’ (cf. Braune 2004b: 286) strongly argues for an original distinction of an accented strong vs. an unaccented weak stem. Third, it has been noted that Germanic *a*-verbs (class VI and a part of the reduplicating verbs) sometimes relate to nominal or verbal forms with zero grade, e.g. OHG *wallan* ‘surge, to burst forth’ : Goth. *wulan* ‘surge, spread’ : ON *vella*

103. $^+\varnothing$ refers to the vocalic reflex of ^+H that surfaces as ^+a in the first syllable of Germanic words, cf. e.g. IE $^+ph_2tér$ > Gmc. ^+fader . In non-initial syllable these reflexes are regularly lost in Germanic (see Lindeman 2004 for a recent overview of the complications involved in the traditionally assumed vocalization of laryngeals).

‘surge, seethe’, OHG *faran* ‘go’ : *furi* ‘civilized’. Moreover, in some cases there are different present stem formations corresponding to only one root, e.g. Goth. *swaran* (< ⁺*swar-a-*) ‘swear’ vs. OS *swerian* (< ⁺*swar-ja-*) ‘swear’ (both strong). From this it has been concluded that the genesis of class VI involved various processes of syncretism and inner-Germanic innovations (cf. e.g. Mottausch 1996 including earlier hypotheses; see also below), a position that requires at least a closer examination.

In the textbooks class VI is treated mainly from a descriptive point of view. Usually, a variety of possible sources for the Germanic vocalism in the present and the preterit is given albeit without offering a convincing explanation for the Germanic situation (see e.g. Braune 2004a: 53). Some authors have posited that the ablaut pattern of class VI is the result of a merger of two Indo-European ablaut patterns, namely IE ⁺*a* : ⁺*ā* and ⁺*o* : ⁺*ō* > Gmc. ⁺*a* : ⁺*ō*, due to regular sound change (see e.g. Hutterer 1972: 59; de Boor and Wisniewski 1984: 57 and Birkhan 1985: 142). It is, however, apparent that this kind of explanation is meaningless without attested cases in which these ablaut alternations indicated the opposition of present vs. perfect in Indo-European, including the relevant types of stem formation and paradigms.

After the discussion of the role ablaut plays in the verbal morphology of Indo-European in 1.1.2 and 1.1.3 above, it has become clear that the ablaut pattern of class VI is hardly inherited from the parent language. A central argument for this view is that the preterit displays only one ablaut grade, while exhibiting the effect of Verner’s Law. This argues for a major Germanic innovation as well as a chronologically later development (see also van der Rhee 1973: 18). According to van Coetsem (1990: 25), the ablaut pattern of the *a*-group is exclusively Germanic although “its ablaut alternations ... are made up of Indo-European elements of disparate origin” (see also Makaev 1964: 33; Meid 1971: 56; Bammesberger 1986: 53 and Mottausch 1996). The etymological facts (cf. chapter three) provide additional support for this hypothesis. More than a third of the verbs in class VI have no Indo-European etymology, and therefore may have entered the language at a later stage.

Accepting that the ablaut pattern of class VI is unlikely to go back to the parent language, some authors have suspected a merger of original aorist and perfect forms. For instance, the ablaut grade in the preterit plural has led Kortlandt (1994a, b) to the assumption that root aorists belonging to roots with *ā*-grade merged with the perfect, forming the uniform lengthened grade that is attested in the Germanic languages. The trouble with this position is that root aorists display paradigmatic ablaut, which means that

they should have either zero grade in the weak stem, if the lengthened grade is due to a laryngeal, or full grade, if the lengthened grade is primary, scenarios that are highly doubtful. Bammesberger (1986: 53) notes that the long vowel in the preterit is particularly puzzling (“besonders rätselhaft”). His own proposal is based on roots with lengthened grade that developed a preterit with lengthened grade, which then spread throughout the entire class. Again, the assumption of primary roots with long vowels other than $\bar{e}$ is very problematic, and furthermore it is unclear why all class VI verbs should lack an original preterit and if so, why they should create a preterit like the one attested but so unlike the existing models, i.e. the primary system and the reduplicating verbs. Moreover, all Germanic strong verbs with long vowels ($^+\bar{o}$, $^+\bar{e}_i$) are found among the reduplicating verbs and not in class VI.¹⁰⁴

The first step in an analysis of class VI is the explanation of the present stem vowel. As mentioned above, roots with primary *o*-grade can be ruled out, whereas class VI seems to include a small number of primary *a*-roots, such as Gmc. $^+skaba-$ < IE $^+skab^h-$ ‘scrape, scratch’ (Rix 2001: 496), which can account for the *a*-full grade in the present of some Germanic class VI verbs. However, the etymological facts make clear that the number of primary *a*-roots in class VI is extremely small, which is why they cannot account for the root vowel of all Germanic *a*-verbs. Apart from representing primary *a*-roots, Germanic *a*-verbs can also represent roots with *e* as a nuclear vowel but with directly preceding or following h_2 or h_3 . In this context note as well the possibility of a zero grade formation from a root with laryngeal, as an interconsonantal (then vocalized) ^+H , i.e. $^+\bar{o}$, in the first syllable regularly surfaces as Gmc. ^+a . In addition, the Indo-European parent language possesses both primary and secondary present stem formations with *o*-grade that could appear as a thematic *a*-present in Germanic, and which are examined below. Lastly, the radical *a* in the present stem could be due to an analogical development. Since for a number of class VI verbs the etymological facts are unknown, this development may indeed have occurred in individual cases.

An examination of the Germanic present stem formations also has to take into account that in class VI there are a number of so-called *-jan* presents, e.g. $^+dau-ja-$ ‘die’. In theory, those formations can reflect either primary presents with $^+j\acute{e}/j\acute{o}-$ or $^+j\acute{e}/o-$ suffixes, or secondary causa-

104. Bammesberger (1986) generally does not use laryngeal reconstructions and it may well be that his proposal is actually based on what is commonly viewed as laryngeal roots, a possibility that is discussed below.

tive/iterative formations. Usually secondary presents are found among the weak verbs, whereas the primary formations pattern with the strong verbs. As far as the etymological facts are known, the majority of *-jan*-verbs in class VI go back to primary formations. As they are formed from roots with a root-internal laryngeal, they share the development of other primary *a*-roots that will be outlined below. Nonetheless, for three class VI verbs it is usually assumed that their present stem goes back to a causative/iterative formation, i.e. a secondary present: these are Gmc. ⁺*wahsja-* ‘grow’, ⁺*dauja-* ‘die’ and ⁺*swarja-* ‘swear’. However, in all three cases there is no compelling evidence for this assumption. For ⁺*dauja-* ‘die’ the *LIV* lists one other secure causative formation, albeit one connected to the basic meaning of the root ‘run, hurry’ and not ‘die’ as in Germanic. The reconstruction of ⁺*swarja-* ‘swear’ as an original iterative formation is even less secure, since the root has the basic meaning ‘resound’, and the assumption of a semantic bridge ‘repeatedly resound’ > ‘swear’ is not trivial. Moreover, for this root there are no iterative/causative formations attested outside Germanic. In the case of ⁺*wahsja-* ‘grow’ causative formations are found in Vedic and Avestan. The semantic match is reasonable, but the Germanic form does not necessarily have to go back to a causative/iterative, it could also have been a ⁺*-jé/jó-* present, which is attested even more copiously. Thus, original secondary present stem formations for ⁺*wahsja-*, ⁺*dauja-* and ⁺*swarja-* cannot be ascertained. Nevertheless, the development of causatives and iteratives will be explored further below. Next, however, the data is reviewed and roots with a regular *a*-vocalism in the present are examined.

As far as the etymological facts are known (cf. Appendix B and Rix 2001), there are only two primary *a*-roots in class VI, Gmc. ⁺*skaba-* and ⁺*slaha-*. Moreover, there are 15 verbs that regularly develop a radical *a*-grade in the Germanic present stem, since their roots contain a pre- or post-nuclear ⁺*h*₂ or ⁺*h*₃. Another six verbs do not possess a laryngeal, and the reconstruction of their present stem is not entirely clear. The three putative causative/iterative formations were already pointed out above, other potential cases will be included in the investigation of the verbs with Gmc. ⁺*a* < IE ⁺*o* below. In addition, there are 17 verbs in this class for which the etymological facts do not permit any reconstruction at all. Thus, out of 46 verbs in class VI, 17 form Germanic *a*-grade presents either as a result of regular sound change, or because they go back to *a*-roots in the parent language, which is why they are labelled *primary a-verbs* here. By contrast, verbs whose radical ⁺*a* goes back to IE ⁺*o* are termed *secondary a-verbs*. Although this differentiation seems arbitrary considering that most primary *a*-verbs received their root vowel due to regular sound change (laryngeal

colouring) too, it reflects an idea according to which Germanic verbs with $^+a < ^+o$ originally are verbs derived from primary e -roots. This will be discussed below.¹⁰⁵

This investigation begins with the primary a -verbs because the reconstruction of their ablaut pattern in the preterit is comparatively straightforward and also because it is suggested here that the pattern of certain laryngeal roots provided the model for the uniform ablaut grade in the preterit of class VI, an idea also expressed by Schumacher (2005). As mentioned above, there are two types of primary a -verbs in this class, namely those going back to a -roots in the parent language, and those going back to laryngeal roots.

Beginning with the more controversial case, i.e. roots with IE ^+a , the question arises as to what their original perfect formations would have looked like. In the Neogrammarian tradition some authors have posited a regular $\bar{a}$ -grade for the singular of perfects belonging to primary a -roots (e.g. Bammesberger 1986: 53; Kortlandt 1994b: 69 and Mottausch 1996: 103), in contrast to the canonical position of a standard o -grade perfect. Jasanoff (2003: 31) also assumes an $\bar{a}$ -grade perfect on grounds of cases such as Lat. *scābī* 'I scratched', Goth. *skōb* 'scraped', OIr. *ro-lámair* 'dared'. He (2003: 31) argues that maintaining the Neogrammarian $\bar{a}$ -grade perfect is preferable to proposing that all these attested forms are "independent creations on the basis of reduplicated perfects of the type $*h_2e-h_2o\acute{g}-$ / $*h_2e-h_2\acute{g}-$ ($*\bar{a}\acute{g}-$) to $*h_2e\acute{g}-$ ($*a\acute{g}-$) 'drive'" because "it is simpler to maintain the old view that the $\bar{a}$ -perfect – with or without an opposition of strong and weak stems – was a genuine PIE formation", in particular as there is "clear evidence for $*a : *\bar{a}$ ablaut in other inherited grammatical categories." A critical evaluation of this contention would go well beyond the scope of this study, especially since the number of class VI verbs that may be traced back to primary a -roots in the parent language is very small; the only cases seem to be Gmc. $^+slaha-$ 'slay, hit' and $^+skaba-$ 'scrape'. Nevertheless, it has to be noted that Jasanoff's argument in favour of the Neogrammarian view is not entirely convincing. At best, this suggests that an $\bar{a}$ -grade perfect corresponding to a -roots could have existed in theory, but a putative formation cannot be considered as evidence.

105. It has to be noted that in a considerable number of cases the etymological facts involving the reconstruction of a Pre-Germanic root are too uncertain to place them in either group. Thus, the group of primary a -verbs may actually be larger, whereas the number of the secondary a -verbs is in fact unclear.

In addition, I am not sure whether the $\bar{a}$ -grade perfect really is the simplest solution. For Germanic, the alternative criticized by Jasanoff, i.e. the analogical spread of regular forms with lengthened grade, seems a great deal simpler than the assumption of a type of Indo-European stem formation based on comparatively little evidence.

Moreover, Jasanoff's position leaves the question unanswered whether the putative formation had a paradigmatic differentiation of two stems. The Germanic data strongly suggests this through the attested effect of Verner's Law on the root-final consonant in the preterit plural stem and the past participle, e.g. OHG *slahan* – *sluoh/sluog* – *sluogun* – *gislagan* 'beat'. Though it is possible in principle that the weak stem of an $\bar{a}$ -grade perfect had a -full grade, similar to the Narten presents, as Jasanoff (2003: 68) argues, this remains an unproven assumption. Germanic can contribute nothing to the solution of this question: an a -grade plural stem is not attested in class VI, as Jasanoff (2003: 31 fn. 6) also notes, and the stem vowel of the past participle could also be a secondary full grade like in class V. To sum up, despite the scanty evidence for an $\bar{a}$ -grade perfect, this study takes the view that in principle this type of stem formation seems conceivable, though it is not assumed here due to the uncertainties of the facts. Besides, in the development proposed below verbs from Indo-European a -roots are insignificant.

The less controversial case are verbs based on original e -roots that include a laryngeal ($^+h_2/^+h_3$), since their perfect formation in the parent language is well-known. Roots with post-nuclear laryngeals have to be separated from those with a pre-nuclear laryngeal because they develop differently. As far as the etymological facts are known, there are only three verbs in the latter group, namely Gmc. ^+aka - 'drive', ^+ala - 'nourish' and ^+ana - 'breathe'. Among these ^+aka - behaves slightly differently because it is the only class VI verb (apart from the preterit-present $^+\bar{o}g$) that develops a lengthened grade in the preterit singular and the entire plural more or less *lautgesetzlich* and in fact similarly to ^+eta - in class V.

- (4) Development of the preterit of Gmc. ^+aka -
 Pre-Gmc. $^+h_2eh_2\acute{o}\hat{g}$ - : $^+h_2eh_2\acute{g}$ - > $^+\bar{a}\hat{g}$ - (< $^+a.a\hat{g}$ -, cf. Av. $^+\bar{a}h$ - 'be' < $^+a.ah$ -, cf. Hoffmann and Forssmann 2004: 79): $^+\bar{a}\hat{g}$ - > Gmc. $^+\bar{o}k$ - : $^+\bar{o}k$ - (see also Jasanoff 2003: 31; Schumacher 2005 and Ringe 2006: 189)

However, in the case of ^+ala - and ^+ana - the weak alternant behaves slightly differently, as the root-final sonorant in the first person plural indicative

assumes the position of the syllable nucleus. This causes the traceless loss of the root-initial laryngeal and prevents the lengthening of the reduplicative *a* (cf. Tichy 2004: 33). Thus, Pre-Gmc. $^{+}h_2eh_2\eta_1-$ > $^{+}a\eta_1-$ > $^{+}un-$ (loss of reduplication and IE $^{+}R_5$ > Gmc. ^{+}uR). In the remaining forms of the indicative and the optative (> Germanic subjunctive) this development is not to be expected because the personal endings of the indicative plural and the optative suffix $^{+}\check{i}éh_1/i\eta_1-$ would have taken over the position of the syllable nucleus, hence the laryngeal lengthening described in (4) above would have occurred: e.g. IE $^{+}h_2eh_2né$ (2nd pl. ind. perf. act.) > Pre-Gmc. $^{+}\check{a}né$. Thus, with the exception of the first person plural the Pre-Germanic preterit paradigms of $^{+}ala-$ ‘nourish’ and $^{+}ana-$ ‘breathe’ display a lengthened reduplicative syllable, and it can be expected that the first person plural eventually conformed to the remaining forms in the paradigm. Consequently, the regular development for the Pre-Germanic forms of the three verbs just discussed yields a lengthened grade preterit. By contrast, for the past participle of all three verbs it has to be assumed that the vowelless root (zero grade) inserted the *a*-full grade (= present stem vowel) secondarily, as already discussed in 3.1.8 above: Pre-Gmc. $^{++}h_2\check{g}-ono-$ > Gmc. $^{+}ak-ana-$, Pre-Gmc. $^{++}h_2n-ono-$ > Gmc. $^{+}an-ana-$.

The second group comprises verbs with a post-nuclear laryngeal, such as Gmc. $^{+}baka-$ (< root IE $^{+}b^heh_3g-$ ‘fry, roast’, cf. Rix 2001: 70). They regularly developed a lengthened grade in the preterit singular stem, e.g. Pre-Gmc. $^{+}b^hebh^h\acute{o}h_3g-$ > Gmc. $^{+}b\acute{o}k-$. However, in the weak alternant these verbs faced the same problem as CeC-verbs in class V: after the loss of reduplication the preterit plural stem possessed initial consonant clusters, e.g. Pre-Gmc. $^{+}b^hg\acute{m}é-$ (cf. $^{+}g^hb^hmé$ in class V), which were problematic from a phonotactic as well as a paradigmatic point of view.¹⁰⁶ Thus, it is plausible that the lengthened grade spread analogically, a development similar to that in class V (also suggested by Schumacher 2005 and Ringe 2006: 190).¹⁰⁷ The circumstances in class VI were even more favourable.

106. Recall that vocalized laryngeals in non-initial syllable are regularly lost in the Germanic branch, hence Pre-Gmc. $^{+}b^hebh^h\acute{a}_3g\acute{m}é$ > $^{+}b^hebh^hg\acute{m}é$.

107. As mentioned above, Jasanoff (2003: 31) also considers an analogical spread involving verbs with initial laryngeal. However, he does not develop this scenario, as he believes in a lengthened grade perfect in the parent language. Austefjord (1987) also advances a hypothesis involving verbs with an initial laryngeal, but he does not take into account the fact that the lengthened grade regularly evolves in these verbs (he does not assume reduplication for the reconstruction of the Pre-Germanic preterit/perfect form). In addition,

First, there were three model verbs with a lengthened grade plural stem instead of only one as in class V. Second, class VI is slightly smaller than class V (cf. Appendix B), which means that there were fewer verbs to ‘convert’. In addition, it is likely that a substantial part of class VI did not possess inherited perfects, and therefore would have had to form new ones after the existing models. Third, the verbs in question already possessed a lengthened grade singular stem and so did the model verbs ⁺*aka-*, ⁺*ana-* and ⁺*ala-*, yielding a perfect proportion (see 4. below). Moreover, in the past participle verbs with a post-nuclear laryngeal would have possessed a vocalic reflex of the laryngeal that would have regularly yielded Gmc. ⁺*a*, i.e. IE ⁺*b^hh₃g-ono-* > Gmc. ⁺*bakana-*, which also would have been in line with the model verbs. As far as the etymological facts are known, there are no primary *a*-verbs with a root-final sonorant, which would have been able to form a regular zero grade, like class IV verbs. In addition, the few primary *a*-verbs with a root-initial sonorant (also as part of a cluster) probably behaved like verbs of the ⁺*breka*-type and may initially also have had a regular zero grade that would have been replaced analogically by the lengthened grade.¹⁰⁸

Thus, all primary *a*-verbs (with the possible exception of primary *a*-roots, whose perfect formation is still debated) regularly develop a lengthened grade in the preterit singular stem. Furthermore, for verbs with a root-final laryngeal an analogical development of a lengthened plural stem is assumed here on the model of the three verbs with a root-initial laryngeal. In the past participle *a* evolves either as a reflex of the laryngeal or as a secondary full grade, depending on the verb’s root structure. As a result, a new type of ablaut pattern is created lacking the differentiation of a strong

Austefjord’s analysis is based on several unlikely assumptions yielding an incorrect analysis. Nonetheless, the initial idea, namely that a lengthened grade preterit and a uniform ablaut grade in the preterit first developed regularly involving laryngeals, and then provided the model for a new ablaut pattern initiated the proposal advanced in the main text (supported by Schumacher 2005 and Ringe 2006: 190, already considered by Hinderling 1967: 15–17). Bammesberger (1986: 53) also posits an analogical development from models with regular lengthened grade, but his model paradigm, Gmc. ⁺*wada-*, is not a good example, as the lengthened grade in the plural does not develop *lautgesetzlich*, and in addition its etymological foundations are somewhat uncertain. The only exact match is L *uādō* ‘go, stride’ and a connection to Hitt. *wēhzi* ‘to turn to’ are generally not supported in the literature (cf. Rix 2001: 664).

108. There are no verbs of the structure *VH-*, which would have developed like ⁺*aka*, ⁺*ala*- and ⁺*ana*-.

vs. a weak stem in the preterit, which nonetheless remains a feature of the primary system.

- (5) Illustration of the spread of the $\bar{o}$ -grade to Cah_2/h_3C -verbs¹⁰⁹
 $^+aka- : ^+\bar{o}k- : ^+\bar{o}k- : ^+akana- = ^+baka- : ^+b\bar{o}k- : x : ^+bakana-$
 $(x = ^+b\bar{o}k-)$

Nevertheless, this raises the question why this type of preterit with a uniform ablaut grade survived, although the vast majority of the ablauting verbs (i.e. the entire primary system) retained two stems in the preterit, which in addition was the inherited model. Notwithstanding the speculative nature of any proposed answer to this, I would like to suggest the following. The differentiation between present and preterit by means of ablaut is one of the cardinal rules for ablauting verbs, with the past participle being of minor importance in this regard. There is no ablauting verb that does not possess this most fundamental categorial distinction, with the preterit-presents as a clear exception constituting their own subsystem. Even the numerous changes that transformed the strong verbs in the Germanic daughter languages, such as Modern English and Modern German, show no levelling of this opposition. The establishment of this fundamental contrast thus presumably took precedence over the inherited differentiation of preterit singular vs. plural stem. In addition, there was a reasonably well-established paradigm with a uniform ablaut grade in the preterit and the remaining verbs either did not have an inherited perfect (cf. below), or had a morphologically problematic weak stem (after the loss of reduplication).

As a result of this discussion, it is suggested here that primary *a*-verbs with a laryngeal provided the model for the attested class VI preterit with uniform $\bar{o}$ -grade. From a regular development in three verbs this new type of ablaut pattern subsequently spread to other verbs in this group because they already possessed an $\bar{o}$ -grade in the preterit singular and problematic root-initial consonant clusters in the plural after the loss of reduplication, which threatened to obscure the uniformity of the paradigm (see also Ringe 2006: 190). In contrast to class V the uniform ablaut grade is a result of the regular development of the $\bar{o}$ -grade in the preterit singular of all verbs with a laryngeal in class VI.

Apart from going back to primary *a*-verbs, for which the development of a uniform ablaut grade in the preterit has just been laid out, class VI verbs can also reflect secondary *a*-verbs, i.e. verbs with Gmc. $^+a < \text{Pre-}$

109. This proportion uses Germanic forms for reasons of simplicity without making any chronological implications.

Gmc. ⁺*o*. This means that original stem formations displaying regular *o* have to be analysed. However, it has to be emphasized that in a number of cases the etymological data is insufficient to posit an original *o*-formation beyond reasonable doubt. In other words, in contrast to the primary *a*-verbs, whose stem formations can generally be reconstructed with sufficient certainty, the stem formations of the secondary *a*-verbs cannot be identified with equal certainty. At any rate, it seems justified to suspect that their number was clearly lower than that of the primary *a*-verbs.

Two of the latest studies on the origin and the development of *o*-verbs have been carried out by Mottausch (1996) and Jasanoff (2003), who also review the previous literature. Both assume that Indo-European root presents could be formed using either the well-known athematic endings ⁺*-mi*, ⁺*-si*, ⁺*-ti* or the perfect/stative endings ⁺*-h₂e*, ⁺*-th₂e*, ⁺*-e*. Jasanoff (2003: 66–74) argues that the latter possibility is evidenced by the Anatolian *hi*- conjugation, and proposes – in contrast to the traditional view (cf. e.g. Rix 2001) – that this really was a distinct category in Indo-European. One central argument used to support this hypothesis comes from verbs that display *e*-grade in one language but *o*-grade or zero grade in other languages, e.g. from the root IE ⁺*melh₂-* ‘grind’ Gmc. ⁺*mala-*, Lith. *málti* vs. OIr. *melid*, OCS *meljǫ*, Arm. *malem* (< *młh₂-*). In Hittite the verb from this root has the reflex of *o* and shows the endings of the *hi*- conjugation, evidenced by archaic 3rd sg. *malli* (< pre-Hittite ⁺*mólh₂-e*). This leads Jasanoff (2003: 70–71) to the conclusion that originally this verb had a paradigmatic ablaut of *o* vs. *e* as well as perfect/stative endings. He therefore sets up a paradigm on the basis of ⁺*mólh-h₂e* (1st sg.) : ⁺*mél-meH* (1st pl.).¹¹⁰ The weak stem, according to Jasanoff (2003: 69) had the tendency to be replaced by zero grade in line with standard athematic formations. Later the daughter languages very often thematized these verbs, levelling ablaut differences and changing the endings, thus arriving at the forms cited above. It is only in Hittite where there remain traces of the original inflection. The possibility for perfect endings to acquire present usage is evidenced, according to Jasanoff (2003: 71), by the fact that the *-ō* in the widespread thematic presents of the type L *ferō* ‘I carry’ represents in fact a perfect ending, i.e. ⁺*bhéro-h₂*. However, Jasanoff (2003: 74f) admits that there are only few examples where *e*-grade and *o*-grade are attested in different languages. Another question is whether the co-occurrence of *o*- and *e*-grade alone is

110. Mottausch (1996: 93) does not accept this ablaut alternation arguing that the weak stem at an early stage was always zero. Jasanoff (2003: 68), however, convincingly demonstrates its existence at least for the nominal system.

sufficient to warrant Jasanoff's proposal of a distinct *-h₂e*-conjugation. Despite these problems, Jasanoff's hypothesis may nevertheless shed some light on the Germanic secondary *a*-verbs, as also suggested by Mottausch (1996).

The point where Jasanoff (2003) and Mottausch (1996) diverge is Mottausch's assumption (1996: 92–93) that the '*-h₂e*-conjugation' was used to derive verbs from already existing (standard) athematic *-mi*-presents. This contrasts with Jasanoff's (2003: 72) position that each verbal root in late Indo-European had the possibility of forming a '*-mi*-verb' or a '*-h₂e*-verb', although he specifically assumes an original functional motivation for the '*-h₂e*-conjugation'. Mottausch's contention is motivated by two significant observations made by other authors in the past. First the '*-h₂e*-verbs' very often denote an iterative movement or an intensive activity, a fact that is also noted by Jasanoff (2003: 76). This characteristic can be attached to numerous verbs with *a*-vocalism in Germanic, e.g. ⁺*mala*- 'grind', ⁺*ganga*- 'go', ⁺*hlahja*- 'laugh', though some of these cannot be reconstructed as '*-h₂e*-verbs' because they clearly display a suffix (recall that the proposed *-h₂e*-conjugation is athematic). Second, as already Brugmann (1913a) and others have remarked, there are several Germanic *a*-verbs that display structural and semantic connections with *e*-verbs, leading Brugmann (1916: 121–123) to the conclusion that the *a*-verbs might be back-formations from earlier intensives formed from primary *e*-verbs (Mottausch 1996: 80). These *e*- and *a*-pairs (cf. ⁺*wella*- : ⁺*walla*- below) can rarely be identified directly, since the *e*-verb is very often unattested, but there seem to be some clear traces of an original connection.

This is in fact the starting point from which Mottausch (1996) sets out. He (1996: 78) notes that Gmc. ⁺*ganga*- has an unusual form in the North-West-Germanic languages, such as OFr. *gunga*, which can hardly be explained as analogical. The alternation of *a* vs. *u* in the same verb, albeit diatopically distributed, is reminiscent of the identical inner-paradigmatic variation in the preterit-present Gmc. ⁺*parf*- : ⁺*purbum*- 'need'. Moreover, the complex formed by Gmc. ⁺*walla*- (only West-Germanic), Goth. *wulan*, Gmc. ⁺*wella*- (not in Gothic) suggests the same interpretation, i.e. that there are pairs of *e*-verbs and *a*-verbs that are semantically either identical or very closely connected while sharing the same consonantal root structure. The case just mentioned is particularly interesting because the *e*-verb in some daughter languages displays the intensive/iterative quality mentioned above, exemplified by OHG *wallan* 'to surge' vs. simple OHG *wellan* 'roll'.

Taking these results into consideration, Jasanoff's position that in late Indo-European a root could use either formation and that '-*h₂e*-verbs' in the daughter languages generalized one of the available ablaut grades seems conceivable. However, this does not tell us anything about the relationship between the -*mi*- and the -*h₂e*-conjugation, a point Jasanoff (2003: 72) does not wish to speculate about, as he says that by late Indo-European "the motivation for the -*h₂e*-endings was purely historical". Though this may be correct, it does not elucidate the intricate relationship between *e*- and *a*-verbs in Germanic. Furthermore, as the traces pointed out by Mottausch (1996) show, and as Jasanoff (2003: 77) suspects, originally the functional distinction seems to have been the description of a plain action (*e*/-*mi*-verb) as opposed to an intensive/iterative action (*a*/-*h₂e*-verb). This is suggested by the fact that what some Germanic *a*-verbs and the '-*h₂e*-verbs' have in common is the intensive/iterative function compared to the plain action of *e*-verbs (see also Hiersche 1963). If this really was the original functional motivation of the '-*h₂e*-verbs' then this would indeed put this formation in the vicinity of the canonical causative/iterative formations similar to Brugmann's suggestion mentioned above.¹¹¹

For the *a*-verbs displaying an Indo-European suffix, some contamination has to be assumed for accentual reasons. Mottausch (1996: 81) draws attention to the well-known fact that causatives/iterative-intensives and original *e*-verbs can co-exist, visible in pairs of a weak and a strong verb in Germanic, e.g. Goth. *dreiban* 'drive' vs. *draibjan* 'vex'. But also a strong

111. Mottausch (1996, 2003), based on Meid (1971), suggests that the -*h₂e*-conjugation originated from a proto-perfect ("Urperfekt") as an intensive/iterative formation (cf. also below) with optional reduplication. That reduplication in these cannot have been obligatory is claimed by Jasanoff (2003: 67), arguing that reduplicatives should have been preserved at least in some languages. The overview of the -*h₂e*-conjugation by Jasanoff (2003), which includes aorist and perfect formations, suggests that it might have been more than just some stem formation but rather a parallel system, going back to the stative diathesis. As Jasanoff (2003: 70) points out the -*h₂e*-presents differ from -*mi*-presents only in the endings ("perfect endings") that are related to the stative (cf. Meier-Brügger 2000: 169; Mottausch 2003: 28 and Tichy 2004: 92–93). From that point of view, Meid's "Urperfekt" really looks like a stative formation. This would mean that the -*h₂e*-conjugation essentially reflects the stative diathesis, which is also suggested by Mottausch (2003: 28). For the present study, however, the exact origin and function of this ancient conjugation type are of secondary importance as it is the connection between *a*- and *e*-verbs that is focused upon in this section.

verb can display variation between a regular formation and an intensive-intensive formation in, e.g. Goth. *swaran* vs. North-West Gmc. ⁺*swarian*, both ‘swear’. Moreover, doublets with Verner variants also point to a crossover between *e*-verb and causatives/iteratives, e.g. Gmc. ⁺*skaida* / ⁺*skaiþa*- (Goth. *skaidan* ‘part’ vs. OHG *giskeidan* ‘separate, differentiate’).

Thus, I agree with Mottausch (1996: 88–89) in assuming either a potential contamination between original *e*-verbs and their causatives, or the ousting of either form in a limited number of verbs but not in cases in which there is no trace of either an *e*-verb or a suffix supporting such a contamination. However, as Mottausch (1996: 90) correctly infers, for a significant number of secondary *a*-verbs a different explanation has to be found.¹¹² Mottausch (1996: 93) identifies these verbs as relics of the ‘*h*₂*e*-conjugation’ and proposes that they originally conveyed an intensive/iterative function as opposed to the basic *-mi*-verb. In principle he bases his analysis on Meid (1971: 38–45), who suggested that the perfect and the middle come from one common source. He called this the *medio-perfect*, but it actually seems to be the stative. In comparison to the basic *-mi*-verb these stative verbs with *o*-vocalism had various semantic motivations that Meid (1971: 64) describes as durative, intensive and iterative, with optional suffixal marking. He gives the example of ⁺*pér-mi* vs. ⁺*pór-h₂e* (“Urperfekt”, medio-perfect) with causative/iterative ⁺*por-éie/o*-. As the semantic content of words tends to fade through usage, in some cases either variant could be lost or contaminated by the other (cf. Meid 1971: 62).

So far this means that original stative (“Urperfekt”) forms are the basis of secondary *a*-verbs in Germanic such as ⁺*mala*- ‘grind’ or ⁺*fara*-‘go, fare’. Moreover, Mottausch (1996: 104) points out that this stative formation could only be used with verbs where it was semantically possible, a typical example being verbs of movement. Meid (1971: 65) goes even further in assuming they could only develop into presents in languages which either lost or did not further develop the middle, such as Germanic and

112. Nonetheless, for some of them, too, a connection to an *e*-verb can be tentatively suggested: ⁺*halda*- (red. verb) ‘to mind, to care for’ and ⁺*hela*- (class IV) ‘to hide’ with ⁺*d^h/t*-determinant of the root (cf. also Meid 1971: 76 but with different base), ⁺*skalda*- ‘to push’ (red. verb) and ⁺*skelda*- ‘to insult’ (class III), as well as ⁺*spanna*- ‘to tense’ (red. verb) and ⁺*spenna*- ‘to spin, to connect’ (class III). It is interesting to note that the majority of the few clear cases with co-existing *e*-verbs can be found among the reduplicating verbs.

Baltic; one might add that one of the strongest attestations of an *o*-present is L *molō* (in Latin the middle ultimately took over passive meaning).

As far as Germanic is concerned, the rest of the analysis is provided by Mottausch (1996: 103–104). Accordingly, the stative *-h₂e*-verbs originally did not have a perfect, neither did the causatives/iteratives as secondary presents. In the Pre-Germanic present they inflected like the preterit-presents with paradigmatic ablaut *a* : Ø (replacing earlier *e* grade, cf. above), e.g. Gmc. **parf-* : **purbum-* ‘need’ (cf. Goth. *parf* : *þaúrbum* ‘need’). Mottausch (1996: 102) assumes that the present of these verbs generally had reduplication, even though it was in principle facultative, which was then lost in Germanic, probably under the pressure of the still co-existing *e*-verbs. However, as Jasanoff has pointed out, reduplication could hardly have been obligatory because then traces ought to be found in languages that generally retain present reduplication. In Jasanoff’s (2003: 67) view, the only possible support for Mottausch’s assumption depends on the correctness of the equation of Gmc. **mala-* ~ Ved. *ma(r)martu* (3rd sg. pres. impv.) posited by Klingenschmitt (1982: 146), but this could easily be a singular case. In Jasanoff’s (2003: 67, fn 8) view the position of a present with *o*-grade as well as reduplication, i.e. the canonical type 1g in Rix et al. (2001), is based on “a single, potentially analogical Germanic form”, namely Gmc. **dō-* < **dedō-*.¹¹³ Thus, Mottausch’s (1996: 93) idea that reduplication was a prevalent add-on is hardly convincing. Also seen from a system-internal point of view, bearing in mind the relation of the stative to the perfect (*reduplicated stative*, see Kümmel 1996: 9), Mottausch’s proposal is unlikely; it seems much more plausible that the *-h₂e*-conjugation originally was not reduplicated. Hence, the diachronic schema in Mottausch (2003: 28), arguing for a reduplicated “Urperfekt”, is problematic.¹¹⁴ According to Mottausch (1996: 103), the Pre-Germanic *-h₂e*-verbs, which could be called ‘perfect-presents’, did not have an original perfect. Therefore, when the need arose to form a past tense, they either formed a weak preterit on the model of the preterit-presents, or they followed the model verbs of class VI (ablauting preterit with lengthened grade) and the reduplicating verbs (reduplicated preterit), depending on their root structure. In both groups the secondary *a*-verbs formed a minor-

113. See Hill (2004) for a reconstruction of the present forms of Gmc. **dō-* from the subjunctive of the root aorist.

114. As present reduplication is not found in Germanic anyway, this question can ultimately be left open.

ity¹¹⁵, so that this development appears plausible. The remaining steps are a mere formality: levelling of the present stem and thematization, which cannot have occurred too early, as there appear to be clear traces (see Mottausch 1996: 104).

To sum up this investigation of the origin of class VI, there are basically two types of Germanic *a*-verbs: first, primary *a*-verbs, in which *a* is either the original root vowel, e.g. Gmc. ⁺*skaba*- ‘scrape, scratch’ (< IE ⁺*skab^h*-), or the result of laryngeal colouring, such as Gmc. ⁺*aka*- ‘drive’ (< *h₂eĝ*-). As far as the etymological facts are known, this is the largest group of verbs in class VI. Second, verbs whose radical *a* reflects an Indo-European *o* may, according to the hypotheses discussed above, go back to some derivations from original primary *e*-verbs, namely causative/iterative formations or remnants of a putative *-h₂e*-conjugation, as suggested by Jasanoff (2003) and Mottausch (1996). However, due to the scanty etymological data in this area, this last proposal must remain tentative, as there is a great deal of speculation involved. At any rate, the spread of the uniform ablaut grade in the preterit is explained here as an analogical development after the model of the primary *a*-verbs with a root-internal laryngeal, which developed a lengthened grade preterit more or less regularly. For Germanic the pre-history of the secondary *a*-verbs is of lesser significance, as both Mottausch (1996) and Jasanoff (2003) assume that the secondary *o*-verbs in Germanic formed a new preterit on the model of the existing ones, i.e. the verbs of the ⁺*aka*-type. This is indeed the main result drawn from the investigation so far, namely that the ablaut pattern of class VI is due to the analogical spread of the regular perfect formations of laryngeal roots (see also Schumacher 2005 and Ringe 2006).

3.2.3. Structural properties

As mentioned above, the characteristic root structure of this class is *C_maC_n(C_p)*- with the specification that *C_p* can only occur if *C_n* is not a sonorant. The *a*-vocalism places verbs with this structure outside the primary system, while the structural constraints for the root-final consonants put them into the secondary system, because the *a*-verbs of the reduplicating class have either diphthongal roots or root-final consonant clusters with a sonorant as their first element. The only exceptions to this are ⁺*standa*-

115. It has to be kept in mind that about half of the reduplicating verbs do not have *a* as a root vowel.

‘stand’ and the *-jan* presents with *au*-roots. However, the former is an old infix formation (see e.g. Birkhan 1985: 142) and the latter type does not exist among the reduplicating verbs (where it belongs from a systematic point of view).

More than half of the roots in this class begin with a single consonant, semivowel or vowel, but, as in class V, there are comparatively few plosives, the strongest consonants. It is striking that there are a large number of *-jan* presents (about 25%) and a high number of verbs with ^+p as a root-final consonant. As mentioned in the previous section, there are class VI-verbs that may have corresponding *e*-verbs in the primary system. From a semantic point of view, many verbs match the description ‘intensive, iterative’, which is also one of the results of Hiersche (1963) noted by Mottaus (1996: 92): “Bezeichnungen wiederholter, (meist) physischer Tätigkeiten”¹¹⁶ (see also Seebold 1970).

3.3. The *safety net* system: The reduplicating verbs

3.3.1. Preliminary background assumptions

The reduplicating verbs form a distinct sub-group among the Germanic strong verbs. They are characterized by preterits with partial reduplication of the root syllable, and can be unambiguously identified via the structure of the present tense stem, i.e. the root. As argued in 1.3, only the reduplicating verbs with radical $^+e_1$ ($< ^+eh_1$) had the possibility to use ablaut, and, as far as they are inherited, they probably displayed ablaut as well as reduplication. According to the general opinion, the reason why the remaining verbs do not show ablaut is found by a look at their root structure. All these verbs possess heavy bases with either a diphthong ($a+i/u/S$) or $\bar{o}$ as their root vowel. Therefore, the formation of an ablaut grade would have been impossible for phonotactic reasons in the former, and because there was no ablaut grade available in the latter case. The diphthongs with *a* as a first element would have had to use the lengthened grade, but long diphthongs cannot be reconstructed for Germanic; nonetheless, the sequence would have been rather awkward from a phonotactic point of view. For $\bar{o}$ as the root vowel there exist no ablaut models, so that for the formation of the perfect reduplication was a crucial marking device.

116. ‘Terms for repetitive (mostly) physical kinds of action’.

Consequently, reduplication was used for the characterization of the temporal opposition. Meid (1971: 71) calls this a “Notlösung”, an “emergency solution” (see also Meid 1971: 67, van der Rhee 1973: 17 and the discussion in 1.3.1). However, Meid (1971: 69–81) claims that reduplication is a Germanic innovation based on the *verba pura* with long vowels, as opposed to other authors who have posited that reduplication is an archaic feature (e.g. Bammesberger 1986: 60 and Kortlandt 1992: 101). The reason behind Meid’s assumption is that he does not view the canonical type of perfect as the model inherited from Indo-European (Meid 1971: 67) and believes (Meid 1971: 53) that reduplication in the perfect was generally facultative. Hence, Meid (1971: 40) does not posit an original reduplication for all Germanic strong verbs. Instead he (Meid 1971: 80–82) wonders how Germanic acquired the model of reduplication. As noted in 1.3.1 above, the notion of a perfect formation without reduplication can hardly be imagined for the Indo-European verbal system. In addition, Meid (1971: 75, see also Bammesberger 1986: 60) avers that the reduplicating verbs generally do not have good Indo-European etymologies; therefore he infers that several verbs had to form analogical perfects. However, as the etymological investigation in chapter three demonstrates (cf. also Appendix B), the reduplicating verbs contain a relatively high amount of inherited lexemes, which is an argument for reduplication being an archaism rather than an innovation.

Nonetheless, if reduplication has to be considered archaic, then it seems peculiar that Gothic – being the only Germanic language that has retained reduplication – does not show any inner-paradigmatic ablaut in the preterit. At any rate, it remains a fact that the Indo-European perfect possessed two different stems.¹¹⁷ There are actually some Anglian forms, in particular *leord* ‘let’, which are usually seen as going back to a weak alternant with zero grade (see e.g. Bammesberger 1986: 63 and Hill 2004: 273). This suggests that at least some reduplicated preterits display the usual Indo-European perfect formation. Thus, it seems plausible that original perfects did have paradigmatic ablaut, but that it was eliminated at an early stage. One reason for this could be the fact that in Gmc. ⁺*ē*₁- verbs (e.g. ⁺*lē*₁*ta*- ‘let’) a regular zero grade in the weak stem would have led to highly ir-

117. Only the preterit-present Goth. *áih* ‘I own’ vs. *áigun* ‘we own’ displays the effect of Verner’s Law, which, however, does not say much about the preterits of the reduplicating verbs in general, as it is far from clear that it reflects an original perfect formation.

regular forms endangering the transparency of reduplication once the accent had shifted to the root syllable, as Hill (2004: 279–280) points out:

Im Prät. Pl. sind die Verhältnisse allerdings komplizierter. Hier lag der Akzent in vorgermanischer Zeit auf der tiefstufigen Wurzel, sondern auf den Endungen. Die 3.Pl.Perf. muss man als vorgerm. **se-s-ŋd* und **re-r-ŋd* rekonstruieren. Die Verlagerung des Hauptakzentes auf die Wurzel war in solchen Wortformen offensichtlich nicht möglich, weil die Wurzel keinen Vokal enthielt. Es stellt sich die Frage, wie sich die pluralischen Flexionsformen vom Typ der 3.Pl.Perf. vorgerm. **se-s-ŋd* und **re-r-ŋd* sonst verhalten konnten. Es kann wohl nicht als wahrscheinlich gelten, dass der vorgermanische Akzent auf den Endungen blieb: sonst sind sie im Germanischen anscheinend immer unbetont geworden [sic]. Es bleibt nur anzunehmen, dass der Hauptakzent auf die Reduplikations-Silbe verlagert wurde, was ein Verhältnis germ. 3.Sg.Prät. **sezōe* und **rerōe* ~ 3.Pl.Prät. **sézunt* und **rézunt* ergab. Genauso wahrscheinlich auch bei anderer Struktur der Wurzel. ... Man kann allerdings annehmen, dass Ost- und Nordgermanisch den eigentümlichen Akzentwechsel vom Typ Prät.Sg. **lelōt* ~ Prät.Pl. **lélt-* im Laufe ihrer Entwicklung aufgegeben haben.¹¹⁸

Forms like *Angl. reord* ‘rowed’ and *leord* ‘let’ as well as the ON preterit plural forms *røro-* and *søro-* are strong arguments for an original paradigmatic ablaut, since they seem difficult to explain otherwise. Hence, it has to be assumed that inherited perfects originally did have paradigmatic ablaut, but that it was lost in the course of the far-reaching processes of regularization in Gothic and the complete make-over of the reduplicating verbs

118. ‘In the plural of the preterit the situation is in fact more complicated. There the stress was not on the root (zero grade) but on the endings. The 3rd person pl. perf. has to be reconstructed as Pr-Gmc. **se-s-ŋd* und **re-r-ŋd*. In those forms it obviously was impossible to move the main stress to the root syllable because the root did not contain a vowel. There arises the question as to how the plural forms of the pre-Gmc. type **se-s-ŋd* und **re-r-ŋd* handled this problem. It seems unlikely that the Pre-Gmc. accent stayed on the endings: everywhere else they are apparently unaccented. There is only one solution and this is to assume that the main stress shifted to the reduplicative, which yielded a proportion of Gmc. 3rd sg. pret. **sezōe* und **rerōe* ~ 3rd pl.pret. **sézunt* und **rézunt*. This is equally likely for roots with a different structure. ... It can actually be assumed that East and Northern Germanic eliminated this peculiar accentual alternation of the type pret.sg. **lelōt* ~ pret.pl. **lélt-* in the course of their development.’

in North and West Germanic (see also Bammesberger 1986: 63).¹¹⁹ By contrast, the assumption that the Pre-Germanic reduplicating verbs did not have preterits with a differentiation of a strong vs. a weak stem while retaining the archaic feature of reduplication and the perfect endings seems very problematic (see e.g. Bammesberger 1980: 7–8). Consequently, Meid's (1971: 80–88) hypothesis, claiming that reduplication was re-introduced via the *verba pura* with long vowels and that the present was built on the model of the preterit, is unnecessary. This is because the paradigmatic differentiation of a strong and a weak stem follows the regular Indo-European model of perfect stem formation, and is also strongly supported by the data.

According to the attestations, the vowel of the reduplicative is likely to have been *e*, though Indo-European also had partial reduplication using other vowels (see e.g. Bammesberger 1986: 60–62; Vennemann 1994, 1997; d'Alquen 1996: 69 and Mottausch 1998).¹²⁰ In addition, I assume that syllable-initial consonant clusters are regularly simplified according to the haplology rule set up by Vennemann (1997: 301): "Only consonants up to the strongest one are retained, a following weaker one is deleted": Thus, for example Goth. *fraisan* : *faifrais* (**fraifrais*), *slēpan* : *saislēp* (**slaislēp*), *skaidan* : *skaiskaid*.¹²¹ Furthermore, I agree with the majority of authors that the reduplicative was unaccented like all Germanic verbal prefixes and the reduplicative in the Indo-European perfect (see e.g. Bech 1969; van Coetsem 1990; d'Alquen 1996; Vennemann 1994, 1997 and Mottausch 1998a). As argued in the literature, this can be inferred from the effect of Verner's Law on the root-initial consonant visible in Goth. *saizlep* 'slept' and Olce. *sera* < **sezō* vs. Goth. *saíso* both 'sowed' (secondary restitution of the root-initial voiceless fricative).¹²² The specific chronology

119. Stephen Laker (Leiden, p.c.) reminds me of the fact that Gothic often displays simplification and over-generalization. Vennemann (1997: 330) attributes this to the fact that Gothic as a colonial language was "subject to many regularizations as a result of language contact situations" (see also van Coetsem 2000: 205–212).

120. For verbs with root-initial **h₂*, *a* is expected as the vowel of the reduplicative. However, those three verbs whose etymology is clear, **arja-* 'plough', **auka-* 'increase' and **ausa-* 'scoop', do not have attested perfect formations outside Germanic. It is thus likely that the new perfects were created in analogy to the majority of perfect with *e*-reduplication.

121. For the concept of phonological strength see e.g. Vennemann (1988: 8–10).

122. This is also a strong indication that the Germanic verbal prefix formations came into existence after Verner's Law ceased to be effective, i.e. after the

of Verner's Law, accent shift and Grimm's Law assumed by Vennemann (1994, 1997) proposes that the ablauting strong verbs gave up reduplication after the initial transformation by Verner's Law but before the accent shift. The loss of reduplication in the ablauting strong verbs has already been discussed in 1.3.1 above. Accordingly, the majority of the reduplicating verbs (those with a diphthong or $\bar{o}$ as roots) retained reduplication due to the lack of alternatives. By contrast, it is neither entirely clear why $^+l\bar{e}_1$ -verbs retained reduplication (see the quotation from Hill 2004 above), nor why it was given up by the verbs in classes I to VI. Only in Gothic are the reduplicating verbs attested as a group. In the North and West Germanic languages reduplication was abolished (with clear traces remaining) in favour of an ablaut-like alternation, whose development is still debated (see e.g. Vennemann 1994, 1997; d'Alquen 1996 and Mottausch 1998). This process, leading to the establishment of class VII, however, is beyond the scope of this study, which focuses only on Germanic.

3.3.2. Morphological characteristics

From what has been said so far, the following paradigmatic stems can be set up for the reduplicating verbs in the Germanic period, i.e. after Grimm's Law but before the separation of Gothic (the Gothic forms are given as comparison):

- (6) Reduplicating verbs in Germanic
- | | | |
|------------------------------|-----------------------------------|----------------------------|
| a. $C\bar{e}_1C-$ (17 verbs) | | |
| $^+l\bar{e}_1ta-$ (present) | $^+l\bar{e}l\bar{o}t-$ (preterit) | $^+l\bar{e}_1tanaz$ 'let' |
| (Goth. <i>lêtan</i>) | <i>laîlôt</i> | <i>lêtans</i>) |
| b. $C\bar{o}C-$ (16 verbs) | | |
| $^+b\bar{o}wwa-$ | $^+beb\bar{o}w-$ (?) | $^+b\bar{o}wwanaz$ 'bulid' |
| (Goth. <i>bauan</i>) | ^+baîbau | ^+bauans) |
| c. $(C)aiC-$ (9 verbs) | | |
| $^+haita-$ | $^+heg\bar{a}it-$ | $^+haitanaz$ 'call, bid' |
| (Goth. <i>haitan</i>) | <i>haîhait</i> | <i>haitans</i>) |

fixation of accent. Otherwise one would find Verner alternation in root-initial consonant of verbs with prefixes, which is not the case. Bammesberger (1980: 3) argues vehemently against Goth. *saîzlep* being evidence for Verner's Law but he neither supports his claim sufficiently nor gives a plausible alternative.

d. (C)auC-	(9 verbs)		
⁺ auka-		⁺ eauk	⁺ aukanaz ‘increase’
(Goth. <i>aukan</i>		<i>aíauk</i>	⁺ aukans)
e. CaSC-	(18 verbs)		
⁺ falpa-		⁺ feþalþ-	⁺ falþanaz ‘fold’
(Goth. ⁺ falþan		<i>faífalþ</i>	⁺ falþans)

3.3.2.1. Vowels

The verbs in (6a), as far as they possess Indo-European etymologies, developed from roots with an internal laryngeal (h_1). There are no Narten presents to be found (see also chapter 3, Appendix B). Verbs of the (6b)-type are highly problematic because their root vowel is difficult to fit into the verbal system of Indo-European. There are a number of possibilities that have been considered in the literature. A regular sound change on the basis of an Indo-European present type can be ruled out, as neither $\bar{o}$ nor $\bar{a}$ can be viewed as a likely root vowel of a primary present stem.¹²³ Therefore, most authors have suggested some form of perfect paradigm: either an ancient medio-perfect (Meid’s “Urperfekt”) with o -vocalism plus a following laryngeal, or mora compensation as a source for the Germanic vowel (see e.g. Meid 1971: 80–86 and Bammesberger 1986: 112–114). Mottausch (1996: 98–101) deals with the development of Gmc. ⁺ $\bar{d}\bar{o}$ -, reconstructing it as a $-h_2e$ -verb, i.e. as an “Urperfekt”, but for this explanation a laryngeal is almost essential. Indeed, most of the inherited Germanic $\bar{o}$ -verbs are reconstructed with a root-internal laryngeal; for those verbs without an Indo-European etymology, however, an analogical development can be assumed. As chapter three will show, the etymological situation of this subgroup is difficult anyway, which may be taken as an argument against a system-internal solution. Reduplicating verbs with a -vocalism have, in principle, the same sources as the a -verbs of class VI, i.e. a -root, e -root plus laryngeal and secondary a -verb ($-h_2e$ or causative/iterative-crossover). The number of secondary a -verbs is considerably higher than that of primary a -verbs, so that a significant amount of a -verbs among the reduplicating

123. Although Meid (1971: 79) proposes that Germanic $\bar{o}$ -verbs often reflect IE $\bar{a}$. However, none of the Germanic $\bar{o}$ -verbs can securely be traced back to a primary IE ⁺ $\bar{a}$. As the reconstructions by Rix (2001) demonstrate, in most cases the Gmc. ⁺ $\bar{o}$ can be derived via a root-internal laryngeal in a reduplicated present, nasal present or other formation

verbs can be regarded as originally derived verbs. While the heterogeneous root vocalism of the reduplicating verbs, which comprises vowels that could not be integrated into one of the ablauting classes, supports the label “Mülleimer” (‘rubbish bin’) given by Vennemann (1994: 193 fn. 53), the high amount of deverbal verbs, i.e. non-primary verbs, is reminiscent of the weak verbs, which exclusively consist of derived verbs. Thus, one could tentatively propose that the reduplicating verbs can in part be viewed as the forerunners of the weak verbs. Several verbs convey an iterative or intensive meaning in repetitive physical actions (cf. class VI, 2.2.3), for example ⁺*taisa-* ‘pick’, ⁺*swaipa-* ‘swing’, ⁺*bauta-* ‘hit’, ⁺*hlaupa-* ‘run’. Moreover, for some verbs corresponding *e*-verbs are attested, e.g. ⁺*brauta-* : ⁺*breuta-* ‘hit’, ⁺*haufa-* : ⁺*heufa-* ‘wail’, ⁺*swaipa-* : ⁺*sweipa-* ‘swing’ (see also Meid 1971: 75 and Mottausch 1996).

3.3.2.2. *Consonants*

The reduplicating verbs contain the highest number of verbs with a root-initial vowel (six verbs), which is always *a*. Consonant clusters form a minority; the majority of roots begin with a single consonant, vowel or semivowel. Reduplicating *a*-verbs are always diphthongal, i.e. they have either a semivowel (⁺*j* or ⁺*w*) or a sonorant as second element. Verbs without root-final consonant, the so-called *verba pura*, are found among roots with ⁺*ē* and ⁺*ō* (19 verbs in total, cf. Appendix B). The largest group of root-final consonants are the voiceless stops, followed by voiced stops; but voiceless fricatives occur only in three verbs. There are four *-jan*-verbs among the reduplicating verbs, for two of which the etymological data permits the reconstruction of the underlying type of stem formation, namely ⁺*arja-* ‘plough’ and ⁺*wē_{ij}ja-* ‘blow’; both of them are primary presents. In the remaining two cases the data is insufficient to safely reconstruct the Pre-Germanic stem formation. From a reconstructional point of view, a significant amount of reduplicating verbs possess a root-final laryngeal, which is responsible for the characteristic long vowels and which also may have played a role in the retention of the reduplicative as discussed in 1.3.1 above. In addition, the laryngeals are also a characteristic feature of the *verba pura*. Synchronically, however, the reduplicating verbs are recognizable by their vocalism and not by their consonantism, as they display roots usually not found in ablauting verbs.

3.4. The system of the Germanic strong verbs: A summary

The previous sections on the system of the Germanic strong verbs can be summarized as follows. First, the strong verbs attained a very high level of organization and conformity through the systematization of ablaut. In contrast to the parent language, verbs in Germanic are categorized solely on the basis of their phonological root structure with the type of historical stem formation being completely insignificant from a synchronic point of view. Ablauting verbs form two systems, labelled primary and secondary system. This division reflects the difference in root vowels and the different ablaut patterns. A group of verbs that could not be integrated into the ablaut system due to mainly phonological and phonotactic reasons express their temporal stems using the inherited reduplication, which ablauting verbs lost at a Pre-Germanic stage. The implications of the hypotheses by Jasanoff (2003) and Mottausch (1996) for the relationship between the primary system on the one hand and the secondary system as well as the reduplicating verbs on the other, suggest that in several cases *a*-verbs were derived from primary *e*-verbs. They subsequently created a preterit in analogy to the primary *a*-verbs in class VI or the group of reduplicating verbs. At least a part of the secondary *a*-verbs may go back to an ancient type of conjugation, the *-h₂e*-type, as proposed by Mottausch (1996) and Jasanoff (2003). In the primary system, the deviant ablaut grades in classes IV and V have been explained in several ways, none of which is without problems. However, the proposition that the generalization started from the preterit plural of Gmc. **ēta-* 'eat' with a regular lengthened grade has the advantage that it does not contain any formal impossibilities. Likewise, the ablaut pattern of the secondary system is probably due to an analogical extension of the pattern of verbs with a root-internal laryngeal that developed a preterit with uniform *ō*-grade more or less *lautgesetzlich*.

Second, ablaut in the system of strong verbs was also functionalized in a way which is unique among the Indo-European languages, but which is typologically close to the Semitic languages. The root vowel of a strong verb has mainly functional value, as it determines the assignment of the relevant subsystem and the ablaut class. It acts like an empty slot that is filled according to the pre-defined ablaut pattern. In this pattern characteristic ablaut grades constitute the verbal stems forming the paradigm. Stem formation works solely on the basis of ablaut, i.e. it expresses the grammatical category *tense* (to some extent also *number*) directly and as a distinctive feature but not as a redundant concomitant of a given type of stem formation.

4. Processes of regularization and traces of fusion

This section discusses the peculiarity that, despite its uniformity, the system of Germanic strong verbs displays certain irregularities – both synchronic and diachronic – that have to be viewed as remnants of an earlier stage not so heavily regularized. The fact that the strong verbs are the product of a regulative process has been noted in the literature (see e.g. chapter one), although its extent is chronically underrated. Note, however, that this does not imply a teleological tendency aimed at the regularization of the system (a mysterious *Systemzwang*). Rather, it suggests that the “regularization” is the result of an analogical extension of paradigms and forms that can be expressed by analogical proportions (cf. 4.2 below). Nonetheless, this strong tendency towards uniformity is peculiar, so far lacking a convincing motivation.

As already mentioned, the scope of this development and the ensuing wider implications are still disagreed upon. Particularly in connection with any etymological investigation, a thorough analysis of the morphological peculiarities appears necessary. It will be shown that in the formation of the strong verb system far-reaching changes in root structure and stem formation occurred, which have hitherto been left unexplained, and which are not unproblematic from a system-internal point of view. Section 4.1 deals with alterations that have already been recognized in the literature, i.e. thematization, and occasional normalization of root vowel. In section 4.2 the so-called *aorist presents* and their implication for the development of the strong verbs are examined. This investigation will show that in numerous instances strong verbs received their uniform appearance through a far-reaching process of normalization. Terminologically, this study follows van Coetsem (2000: 182) in the definition of regularization/normalization and the demarcation from uniformization:

In the present context we will differentiate between regularity as referring to the number of exceptions (e.g. a highly regular rule is one that has no or few exceptions) and uniformity as referring to the number of (categorical) distinctions (e.g. a morphology that uses five ways to pluralize nouns is less uniform than a morphology that uses only two such ways). In such a case uniformization results mostly in reduction.

4.1. Processes of regularization I: Loss of the aorist, thematization and root-normalization

4.1.1. *Loss of the aorist*

As noted earlier, Germanic greatly reduced the diversity of verbal forms commonly reconstructed for the parent language. Diachronically, only the temporal categories present (indicative) and perfect (indicative), parts of the diathesis middle (> passive, as attested in Gothic), the modal forms of the optative (present and perfect), which has a subjunctive value in Germanic, and the imperative (present), are found as morphological categories in Germanic, all of which can occur in 1st to 3rd person singular and plural as well as 1st and 2nd dual.¹²⁴ It is obvious that the aorist as a morphological category does not exist in Germanic. Instead, the system is based on a bipolar temporal opposition of present vs. past tense. However, in contrast to other related languages that do not possess the aorist as a formal category, e.g. Hittite and Latin, there is no trace of this fundamental morphological category in Germanic. This becomes particularly evident when the Germanic preterit is compared with the Latin *perfectum*, in which every verb can be traced back to its aoristic or perfective origin (see Narten 1973). In Germanic, none of the features often associated with the aorist has to be considered compelling evidence. As discussed in 1.3.1 above, it can be shown that neither the lack of reduplication, nor certain endings (like the 2nd pl. preterit in West Germanic) are likely to be traces of the aorist. Moreover, from the viewpoint of stem formation, the only place where Germanic preterit stems could reflect aorist stems is the weak alternant, i.e. the preterit plural stem, as the *o*-grade is not found in the aorist singular. A proposal partly tracing back the Germanic preterit to the aorist has to explain why this occurred only in the plural, but not the singular. However, as all stems of the Germanic preterit can be reconstructed from the Indo-European perfect, it is unnecessary to resort to an explanation involving the aorist. From this discussion it becomes clear that, at least for the time being, it has to be assumed that the aorist in Germanic disappeared without

124. In addition there is a present participle and a past participle. But whereas the former goes back to a participle in the parent language, the Germanic past participle does not represent the Indo-European perfect active participle but a nominal form with the suffix IE ⁺-*ono*-. Both participles are clearly outside the verbal system, since periphrastic formations based on the participles only evolve in the Germanic daughter languages.

leaving a trace (cf. also Ringe 2006: 157). Furthermore, the motivation for this complete loss of a verbal category is still obscure; a suggestion is made by Mailhammer (2006).

4.1.2. *Neo-Perfects and thematization*

Since the perfect, i.e. the morphological ancestor of the Germanic preterit, according to the general opinion, probably only had one possible stem formation (per verbal root), and an influence of the aorist cannot be assumed, not a great deal of regularization is to be expected for the Germanic preterit. As demonstrated in sections 3.2 and 3.3, apart from the obvious loss of reduplication in the verbs of the primary and secondary system, the only major process to be assumed here is that verbs that originally did not have a perfect created it analogically. Moreover, some changes in the endings took place but clearly not to an unusual extent. The present in Germanic, however, must have experienced some more serious regularization. As numerous authors have noticed, from a diachronic point of view, the vast majority of Germanic presents are simple thematic formations, with the few exceptions being of negligible significance. However, the historical Indo-European type of stem formation of quite a few Germanic strong verbs is not corroborated by the attestations in other related languages. For example, Gmc. ⁺*eta-* is a thematic present, whereas OI *ádmī* is an athematic root present from the root IE ⁺*h₁ed-* ‘eat’ (see e.g. Prokosch 1939: 147–148; Krahe 1967: 234–235 and Bammesberger 1986: 34–36). This phenomenon is well known, it occurs in most Indo-European languages, and it is commonly called *thematization*. It basically means that a thematic suffix is added after the root. If this consists of a single vowel, as in the majority of Germanic verbs, it is commonly called ‘thematic vowel’. In addition, the formation loses its paradigmatic ablaut and changes the first person singular to ⁺*-ō* (e.g. L *fer-ō*). The accent is either on the root, which then displays full grade, or on the suffix, in which case the root exhibits zero grade (see e.g. Bammesberger 1986: 34; Meier-Brügger 2000: 153 and Tichy 2004: 105).¹²⁵

Numerous studies have investigated the origin of the thematic conjugation, a topic that is well beyond the scope of this analysis. It cannot go unnoticed, however, that thematization in Germanic is so widespread that

125. This is a simplified description that excludes several special types and secondary formations for which I refer the reader to the relevant literature.

in effect the athematic conjugation is virtually extinct in Germanic. Although this process is found in many other languages, its consistency and extent in Germanic are noteworthy. Moreover, it also affected originally reduplicated presents, such as some secondary *a*-verbs in class VI, which show up as regular thematic verbs without reduplication in Germanic.

4.1.3. Root-normalization I

As already noted, within their subsystem the Germanic strong verbs as a rule show uniform root vowels in the present stem: *e* for the primary system, *a* for the secondary system and *a*, *ē*, or *ō* for the reduplicating verbs (noteworthy exception are discussed in section 4.2). From this most authors have concluded that the majority of Germanic strong verbs must have had a prevalent stem formation of the type 1n (Rix 2001), i.e. a thematic formation with *e/o*-suffix and stable (acrostatic) accent on the root, commonly abbreviated R(*é*)-*e*; e.g. ⁺*b^hér-e-/b^hér-o-* > Gmc. ⁺*ber-a-* ‘carry’ (see e.g. Prokosch 1939: 147; Krahe 1967: 235 and Bammesberger 1986: 34). However, for a number of Germanic presents it has to be assumed that they obtained their ‘regular’ root vowel by analogy, which can be interpreted as a process of secondary normalization. A clear case are (thematic) presents with IE ⁺*-ské/skó*-suffix (type 1p in Rix 2001), nasal infix (type 1k) and nasal suffix (type 1l), all of which regularly show zero grade of the root but exhibit *e-/a*-full grade in Germanic: e.g. ⁺*pre-ska-* ‘thresh’ (Lith. *trėkšti* ‘squeeze, press, milk’)¹²⁶, ⁺*sta-n-da-* ‘stand’ (IE ⁺*steh₂-*), ⁺*gei-na-* ‘yawn’ (OCS *zinōti* ‘yawn’). There is another type of thematic formation that can be found in the corpus of the strong verbs, the ⁺*-jé/jó*-suffix-type, which exists in a version with zero grade and a rarer variant with full grade (types q and r). Obviously, this makes it harder to identify a normalization of the root-vowel, but there are certain cases like ⁺*wahs-ja-* ‘grow’ (OI. *ukṣant* ‘growing’, Gk. *αὔζω* ‘grow, increase’) and ⁺*haf-ja-* ‘lift’. In the latter case the original zero grade is evidenced by the reflexes of Verner’s Law in the present forms, cf. OE *hebban*, OHG *hebban* both ‘lift’ vs. Gk. *κάπτω* ‘snap, swallow’, L *capiō* ‘I take’ (see Rix 2001: 344). These examples

126. Lithuanian shows secondary full grade too. The assumption that IE *-ské/skó*-formations show zero grade is uncontested (see e.g. Krahe 1967: 256; Bammesberger 1986: 39–40; Meier-Brügger 2000: 160 and Rix 2001: 19). In the case of nasal affixes this is less clear.

demonstrate that the genesis of the strong verbs entailed a noteworthy regularization and simplification of the Indo-European aspectual system and the types of stem formation connected to it.¹²⁷ This concerns first of all the complete loss of the aorist as a morphological category but also the frequent process of thematization and the ensuing dysfunctionalization of the inherited types of stem formations, as well as the radical levelling of differences in root vocalism according to the model of the R(*é*)-*e*-type.

4.2. Processes of regularization II: Large-scale root-normalization

Although the changes noted in the previous sections are certainly noteworthy – in particular the loss of the aorist – the occasional morphological standardization seems to follow logically from the introduction of the systematized and functionalized ablaut (which is, of course, a completely different problem), as well as the fact that the Indo-European suffixes lose their functional value. Furthermore, it involves the above-mentioned thematization, plus some cases where the root vocalism was adapted to the already prevalent type of stem formation, the R(*é*)-*e*-type. In other words, once the two major changes – loss of the aorist and introduction of a functional and systematic ablaut – are accepted, the changes described in 4.1 above appear perhaps drastic but not unusual. There are, however, several peculiarities that point to a deeper, more far-reaching process of regularization.

127. See also Krahe (1967: 236): “starke Systematisierung” (‘strong systematization’) as well as Bammesberger (1986: 35–37) and Ringe (2006: 174–175). However, the explanation by Krahe (1967: 236) that the Germanic innovations originated in the perfect after which the present was formed analogically, may be used for certain cases, but it seems difficult to imagine that this process occurred on a large scale. This seems all the more unlikely as the regular replacement of original present formations by simple thematic presents with full grade has to be assumed. In addition, this hypothesis does not explain why exactly the R(*é*)-*e*-present type is predominant among the Germanic present stems.

4.2.1. Irregular vs. regular root vocalism: Zero grade presents in Germanic

Within the corpus of the strong verbs there are verbs that deviate from the formal requirements of the relevant ablaut class by displaying an irregular root vowel. In some cases these have regular doublets in either the same or in a different dialect.¹²⁸

(7) Irregular vs. regular root vowel

- | | |
|-----------|---|
| Class I | ON <i>viga-</i> ‘fight’ ¹²⁹ : Goth. <i>weiha-</i> ‘fight’ < Gmc. ⁺ <i>wiga-</i> : ⁺ <i>weiha-</i> : ⁺ <i>wega-</i> ‘fight’ |
| Class II | OE <i>būgan</i> : OHG <i>biogan</i> < Gmc. ⁺ <i>būga-</i> : ⁺ <i>beuga-</i> both ‘bend’
OE <i>scūfan</i> , OHG <i>skioban</i> < Gmc. ⁺ <i>skūba-</i> , ⁺ <i>skeuba-</i> ‘push’ |
| Class III | OE <i>spornan</i> : OHG <i>firspernen</i> < Gmc. ⁺ <i>spurna-</i> ‘tread’ |
| Class IV | OHG <i>queman</i> : OE <i>cuman</i> < Gmc. ⁺ <i>kwema</i> : ⁺ <i>kuma-</i> both ‘come’ |
| Class V | Goth. <i>trudan</i> : OE <i>tredan</i> < Gmc. ⁺ <i>truda-</i> : ⁺ <i>treda-</i> both ‘tread’ |

Seebold (1970) generally lists two (or sometimes more) stems with a visible preference for the *e*-form, which usually forms the entry’s head. As a rule, Seebold (1970) regards deviations as phonological alternatives but not as morphological root variants. This interpretation is unlikely because phonological variation would have to be licensed by some kind of rule or even a sound law to be of any heuristic value. Anything else is an *ad hoc* proposition and does not explain the data; it is a mere description. As a matter of fact, a part of the problem is that these irregular forms cannot just be viewed from a phonological perspective, as will become clear further below. The bulk of irregular root vowels have unanimously been viewed as

128. This section has greatly benefited from the reception of the works by Josef Jarosch which were pointed out to me independently by Theo Vennemann (Munich, p.c.) and Frank Heidermanns (Cologne, p.c.), for which I am grateful.

129. See Seebold (1970: 544); the following forms are frequently also seen as reflections of the zero grade: Goth. *du wigana* ‘to fight’, OS *wigand* ‘fighter’.

reflexes of the zero grade, except for the class II-verbs with *ū* for which several different approaches exist (cf. 4.4 below).

Traditionally, since Osthoff's (1882) article, the zero grade presents have been compared to thematic aorist forms bearing the same ablaut grade, and were henceforth called "aorist-presents" (Aoristpräsentien), e.g. Gmc. ⁺*dig-a-n-* : OI *a-vid-a-m*. However, this does not propose an explanation involving actual aorist forms; it only expresses that the ablaut grades of the roots of both formations are the same, though the present differs from the aorist in the lack of the augment and primary instead of secondary endings, as Bammesberger (1984: 3) notes. From this it was but a small step to connect the verbs of the Old Indic sixth class, the *tudāti*-type, clearly identifiable as presents by the primary endings, to this type of zero grade present. Prokosch (1939: 149) describes the Germanic situation:

Aorist presents, of the type of *tudāti*, were doubtless more frequent in Pre-Germanic than in the historical forms of the Gmc. languages. Most of them were either changed to the form of the durative verbs by leveling in accordance with the model of the great majority of strong verbs, or they lost their original form by phonetic laws and were transferred to other classes because of a resemblance between the form that they had developed and forms already occurring in those classes. The original suffix accent is indicated by the reduced grade of the root, in so far as this is not obscured by phonetic laws, or by Verner's Law, unless this is leveled.

However, the existence of a thematic present with zero grade in the parent language had already been doubted by Ferdinand de Saussure, as Watkins (1969: 69) points out. In spite of this, the *tudāti*-type has always been considered a vital part of Indo-European grammar, and the aorist presents can be found in most Germanic textbooks (see e.g. Krahe 1967: 237–238 and Watkins 1969: 63). Kuryłowicz (1964: 110–117) claims that the zero grade thematic form is ancestral to the "regular" thematic one (R(é)-e-type), and that it is derived from the athematic present formations (cf. also Watkins 1969: 63). He connects aorist and present via the thematic present, saying that the *tudāti*-type is the forerunner of the ⁺*-jē/jó*-suffix-type, which forms presents corresponding to aorist roots. Thus, the traditional explanation for the situation found in (7) above is that zero grade presents existed in Pre-Germanic (and Indo-European), the majority of which became regularized after the model of the prevalent thematic type, but some remained unaltered.

However, there is one difficulty attached to this view and it is already manifest in the attempts to connect the *tudāti*-type present and the aorist

via the secondary function of iteration by Kuryłowicz (1964: 110–112). This difficulty is the assumption that presents can evolve directly from aorist roots via thematization. This way Kuryłowicz tries to account for the problem that several aorist presents, and, in fact the prototype *tudáti* itself, belong to an aoristic root, a fact stated in Bammesberger (1984: 8)¹³⁰

Da es sich bei **g^wém-/g^wm-* um einen Aorist handelt, ist die oben erwähnte Möglichkeit, daß man die germanischen *TiK-ó* Präsentien bei oberflächlicher Betrachtung einfach als Thematisierungen der schwachen Form eines athematischen Paradigmas *TéyK-/TiK[´]* deutet, ganz unwahrscheinlich, weil kaum vorstellbar ist, wie ein Aorist präsentische Funktion angenommen haben soll.¹³¹

The direct reconstruction of the Germanic aorist presents and the entire *tudáti*-type has to account for the obvious fact that this thematic stem formation can apparently form presents corresponding to aorist roots, whereas it is the general view that the athematic forms of the same aspect are the source of thematization, i.e. that a thematic present presupposes an original

130. Bammesberger (1984: 5–6 and fn 16) attempts to refute the existence of the *tudáti*-type for the parent language arguing that there are no equations between Germanic and Old Indic and that the type is of recent origin in Old Indic. He disregards evidence from Hittite pointed out by Norbert Oettinger in the discussion following Bammesberger's paper (Bammesberger 1984: 22), and the equation of (presumably original) *tudáti*-type Gmc. **stauta-* 'push' (< **stuta-*) and OI *tudáti* 'pushes' itself by Wolfgang Meid in the same discussion (see Bammesberger 1984: 23 and also Meid 1971: 74, supported by Beekes 1995: 228). Usually, if material is attested in three non-adjacent daughter languages one would accept it as Indo-European. But, also if all three languages had invented the *tudáti*-type, the fact that these formations are attested cannot be ignored and thus, Rix (2001) includes this present type in his list (1o) and so does Meier-Brügger (2000: 159–160). Productivity of this type in Old Indic cannot be an argument against its age (see also Jarosch 1993a: 4 fn 6): From a Modern English or German point of view, the dental preterit suffix is comparatively old (more than 3000 years), yet it is still productive, as countless neologisms prove. The real problem is not the existence of this type of present formation but rather the question of how it fits into the pattern of the proto-language.

131. 'As **g^wém-/g^wm-* is an aorist, the above-mentioned possibility of interpreting the Germanic *TiK-ó* presents on a superficial inspection simply as thematizations of the weak form of an athematic paradigm *TéyK-/TiK[´]*, is completely improbable because it is hardly imaginable how an aorist should acquire the function of a present.'

root present. In other words, the potential co-existence of a thematic aorist and a thematic present from the same aoristic root with virtually the same morphological shape in the parent language seems problematic. Why does thematization in the case of the zero grade present change the dimension (aorist > present), but maintains it in the case of the thematic aorist? What is the basis of the thematization for the present if a root present does not exist? To be sure, it is highly doubtful that the change of endings alone entails a change of dimension because the imperfect, formed from the present stem, and the indicative aorist of a thematic conjugation are nearly identical (apart from the ablaut grade in the 1st and 2nd person plural); in particular they share the secondary endings.¹³²

In view of these complications, it may seem preferable to propose the non-existence of the *tudáti*-type for the parent language and to look for a different explanation. In Bammesberger (1984, 1986: 35–36) the doublet of Goth. *qiman* and OE *cuman* ‘come’ are reconstructed using two different paths, a hypothesis that is meant to be a model for parallel cases. Basically, Bammesberger (1984) proposes that the Germanic zero grade presents (e.g. OE *cuman*) evolved from the aorist participle, and that the forms with *e*-full grade (e.g. Goth. *qiman*) go back to an aorist subjunctive, because of the aspectual problem just mentioned. However, just as the assumption of the secondary present formation based on the perfect suggested e.g. by Krahe (1967: 235) cannot account for the original presents, Bammesberger’s hypothesis faces the problem that there are presents attested corresponding to the aoristic roots of Germanic aorist presents, ⁺*g^umō-skē-* (OI *gácchati*), ⁺*g^um̥-je-* (L *ueniō*), root ⁺*g^uem-* ‘come, arrive’. Consequently, it seems logical to assume that Pre-Germanic too, at some stage, had an original present corresponding to this basic verbal root. However, because the attested present, in this case OE *cuman*, does not match the presents attested in other languages, Bammesberger (1984: 7) concludes that the existence of a zero grade present cannot be assumed for this particular root. Instead, Pre-Germanic either did not form a present of this fundamental verbal root, or two parallel present formations existed at some stage in the Germanic period. Not only does this seem odd and unnecessarily complicated, it effectively means disregarding the Germanic evidence com-

132. In the discussion of the origin of the thematic conjugation different scenarios have been proposed, but a consensus has not been reached yet (cf. Jarosch 1992 *et passim*; Meier-Brügger 2000: 150–152; Rix 2001: 12–14 and Tichy 2004: 109–110).

pletely.¹³³ By contrast, although attestations of zero grade thematic presents are not exactly copious (Szemerényi 1990: 286 “selten” ‘rare’), the status of OI *tudáti* ‘pushes’ as an original zero grade present belonging to the root IE ⁺(s)*teuð-* ‘thrust’ (Rix 2001: 601) is never questioned by Bammesberger (1984), and has even been used to name an entire verb class in Old Indic.

Thus, the foundation for the assumption that OE *cuman* needs a special explanation, different from the Old Indic zero grade present, is very weak. However, it has to be agreed with Bammesberger (1984: 9) that not only Goth. *qiman* faces this aspectual problem of belonging to a root aorist, but that this also applies to a number of regular, i.e. simple thematic, Germanic presents. Nonetheless, the reconstruction involving the aorist subjunctive presupposes that in all these cases the original present formations were either lost or never existed because it is unclear how the subjunctive of the aorist could oust or replace fully operational present forms. In the discussion of Bammesberger’s (1984) paper Wolfgang Meid (in Bammesberger 1984: 24) points out that it would be more likely for the subjunctive of the

133. Rix (2001: 210) also considers the existence of two present stems unlikely, and hence posits that the type represented by OE *cuman* (viewed as an unspecified derivation from the aorist: “zum Aorist” ‘to the aorist’) was secondarily regularized yielding the type attested in Goth. *qiman* and OHG *queman*. (cf. also Seebold 1970: 315–316). Beekes (1995: 228) is not sure whether zero grade presents go back to Indo-European, but he notes that they often have “aorist meaning”. According to Eugen Hill (Munich, p.c.), the development assumed by Bammesberger (1984) is conceivable on the following assumptions: As e.g. the *ské/ó*-presents have virtually disappeared in Germanic, this could be an indication that they were generally replaced. A potential substitute could have been the aorist subjunctive, first expressing a semantic difference, later developing into a normal present tense. However, this would only explain the ⁺*kwema*-type but not the zero grade present, and Eugen Hill (p.c.) furthermore admits that this could only have happened in a limited number of cases. Moreover, there are several presents with thematic suffixes among the strong verbs, therefore a general replacement seems questionable. Additionally, in the case of OHG *queman* this explanation would not work, as a ⁺*ǵé/ǵó*-present belonging to the root IE ⁺*ǵem-* is attested e.g. in L *ueniō* (IE ⁺*ǵm-ǵe-*), and this type of present formation is generally not lost in Germanic, as Gmc. ⁺*haf-ja-* and ⁺*bed-ja-* prove. This suggests that the Pre-Germanic present was of a different type, rather than a replacement of an otherwise attested formation.

present to replace the athematic present as a new thematic form than for the subjunctive of the aorist.¹³⁴

Another problem with the suggestion put forward by Bammesberger (1984) was also voiced by Wolfgang Meid (Bammesberger 1984: 24), and it echoes Bammesberger (1984: 9), who had pointed out to refute the possibility of a zero grade present: This is the question of how an aorist stem can assume present value without showing the usual characteristic suffixes or reduplication (see in particular Jarosch 1992 *et passim*). Nearly every description of the Indo-European verbal system makes it clear that present and aorist stems are two juxtaposed categories. Roots generally belong to one of the two poles, and in order to create the opposite stem particular types of stem formation have to be used (see also 1.1.2 above). In other words, a stem formation cannot simply change the dimension, especially without a clear motivation to do so. It may be that categories and dimensions acquire a new meaning, but a development on the scale proposed by Bammesberger (1984) has to be put on much firmer ground and given much more solid support in order to hold.

To sum up, the model for the explanation of the doublet Goth. *qiman*/OE *cuman* advanced by Bammesberger (1984) cannot convincingly solve the above-mentioned reconstructional problem.¹³⁵ Moreover, it does not possess any advantages over the old model, which suggests that OE *cuman* is the original form, reflecting a *tudāti*-present, whereas Goth. *qiman* is a case of regularization. From a Germanic point of view the situation looks quite clear. The *tudāti* type, listed as a present formation (type 1o) by Rix (2001), is used to explain the problematic form OE *cuman*, which is regarded as original, and Goth. *qiman* represents the regularized form (see also Seebold 1970: 315–316). Consequently, the Germanic aorist

134. Mottausch (2003: 24) does not accept a development aorist subjunctive > present indicative because, in his view, the thematic present provides the basis for the aorist subjunctive. However, as Hill (2004: 281–282 and p.c.) points out in singular cases this development may be possible, assuming the following semantic development for the Pre-Germanic root of Gmc. **beita-*, IE **b^heǵid-* ‘cleave’: **b^heǵidetī* ‘he probably is going to cleave the bone’, meaning often something like ‘he is biting (into the bone)’ and thus developing into a present tense. By contrast, in the case of Goth. *qiman*, however, there is no semantic argument for a similar development.

135. To be sure, a regular sound change of **e > *u* between **kw* and a nasal, similar to ON *kona* ‘woman’ vs. Goth. *qina*, cannot be assumed, as evidenced by OE *cwena* ‘woman’.

presents and their doublets are cases of root vowel normalization. Its mechanism is described in detail further below.

As mentioned above, the Germanic strong verbs contain numerous simple thematic presents, most frequently of the *bhárati*-type. In several cases these belong to telic roots, which regularly form root aorists. In the Indo-European parent language thematic presents of this type apparently could be formed corresponding to root aorists, just like any other thematic type. However, in the daughter languages simple thematic aorists are attested that look like the results of a mechanical “thematization” without a transgression of the aspectual border. Consequently, it is usually assumed that a post-Indo-European thematization, i.e. the transformation of an athematic into a simple thematic formation of the *bhárati*- or *tudáti*-type, does not alter the verbal aspect. For Germanic this means that all *bhárati*- and *tudáti*-forms that belong to aoristic roots can only have three potential sources: First, they can be old formations dating back to the Indo-European period. Second, in a very limited number of cases they could have evolved from the aorist subjunctive in the manner envisaged by Bammesberger (1984) for Goth. *qiman* – although in this special case it is unlikely for reasons given above (cf. also Hill 2004: 181–182 for an examination of other cases like Gmc. **beita*-). Third, they could have replaced older formations, as the simple thematic type is the productive type of present formation among the Germanic strong verbs. Alternatively, they could have been formed analogically in cases in which a particular root did not form a present tense. This last option is more likely to have contributed to the spread of the *bhárati*-type, which seems to have been the more productive one, frequently replacing the *tudáti*-type, as demonstrated in the following section.

4.2.2. Cases of normalized zero grade presents: Root normalization II

As already noted above, the Germanic strong verbs display an obvious tendency towards uniformity, i.e. the reduction of variants, for which the virtually complete thematization of all strong verbs is a good example. However, the virtual co-existence of an irregular and regular formation, i.e. OE *cuman* vs. OHG *queman*, suggests that the irregular forms are relics of the original stem formation that escaped the process of uniformization. Section 4.1.3 mentioned that verbs displaying a type of thematic suffix formation that usually has zero grade normally have a completely regular ablaut pattern, including full grade in the present. In addition, there are

original simple thematic presents with zero grade that have been normalized in accordance with the prevalent stem formation. However, in contrast to the former type, i.e. verbs that still display their stem forming suffix despite a visible regularization of root vocalism, e.g. Gmc. ⁺*hafja-* ‘lift’, these normalized simple thematic presents look completely regular, e.g. OHG *queman*. Prokosch (1939: 149) gives clear criteria how original zero grade presents can be identified (see also Bammesberger 1984: 3).

- (8) Characteristic features of (original) zero grade presents
 - a. the root vowel either displays regularized *e*-grade or original zero grade
 - b. the root-final consonant shows the effect of Verner’s Law

It is clear that (8a) does not help to identify completely regularized forms, e.g. OHG *queman* because they show full grade. By contrast, (8b) seems a reliable criterion for verbs that have a root-final consonant subject to Verner’s Law. Due to the fact that Verner’s Law unambiguously reveals the position of accent in the parent language, a voiced Verner variant as a root-final consonant in the present indicates that the root was unstressed in the parent language.¹³⁶ Since in these cases there are no suffixes apart from the thematic vowel, the logical conclusion, according to Prokosch (1939: 149), is that simple thematic presents with regular root vowel but voiced Verner variant in the present stem are former presents of the *tudáti*-type that underwent a regularization of root vocalism, and not original presents of the dominant *bhárti*-type.¹³⁷ However, this only works if it can be as-

136. The argument that the voiced Verner variant in these cases is due to analogical levelling after the preterit plural is not convincing: Firstly, this is not normally attested in the Germanic languages as the present stem always shows the unvoiced Verner variant even if the preterit is levelled after the plural (cf. MHG *ziehen* – *zôch* – *zugen* vs. G *ziehen* – *zog* – *zogen* both ‘drag’). Secondly, levelling in some of the regular cases would have to be expected occasionally but this does not occur (Jarosch 1995–: cxiv).

137. Eugen Hill (Munich, p.c.) points out that under the following assumptions a voiced Verner variant may not necessarily indicate an original zero grade present. If a situation like in Vedic is assumed, where the verb usually is unaccented if preceded by a pre-verb, some verbs that were preferably used with pre-verbs could indeed have been unaccented in the majority of usages. This could have created the impression that the verb in question had an unaccented root, and consequently developed a voiced Verner variant while still showing an R(*é*)-*e*-stem formation. However, this rests on the assumption that the Pre-Germanic verb accentuation followed the Vedic pattern, which can neither be

certained that the root-final consonant was affected by Verner's Law. As voiced stops in Germanic can also go back to Indo-European voiced aspirated stops, the clearest cases are verbs with doublets or related forms evidencing the voiceless Verner variant. Moreover, in some instances cognates from related languages may show the voiceless variant, but this has to be examined carefully to securely establish the etymological correspondence. However, it is not only the present stem that can show the effect of Verner's Law. As is well-known, the Germanic preterit singular stem regularly displays a voiceless Verner variant too, as the perfect singular stem in Indo-European is accented on the root.¹³⁸ As (9) shows, however, this is not always the case. Consequently, there seem to exist several types of irregular verbs exhibiting different grades of normalization:¹³⁹

(9) Normalized strong verbs

a. completely regular paradigm

1. OE *fregnan*, *frægn*, *frugnon*, *frugen* 'ask'
Goth. *fraihnan*, *frah*, *frehun*, *fraihans* 'ask',
2. OHG *werban*, *warb*, *wurbun*, *giworban* 'turn to'
OHG *werfan*, *warf*, *wurfun*, *giworfan* 'turn to'¹⁴⁰
3. OHG *-liban*, *-leib*, *-libum*, *-liban* 'stay'
Goth. *af-lifnan* 'to remain'
4. OHG *stantan*, *stuont*, *stuontun*, *stantan* 'stand'¹⁴¹

completely ruled out nor proven. Nevertheless, as Theo Vennemann (Munich, p.c.) reminds me, verbal prefixes in the historical Germanic languages are generally unaccented, which could be taken as an indication against a situation as in Vedic. Furthermore, it would have to be shown that a particular verb really was preferably used in conjunction with pre-verbs in Pre-Germanic. Especially, verbs which have a preterit with a voiceless Verner variant point into the direction that a Vedic-style accentuation did not influence the root consonantism of the Pre-Germanic verbs, as it would have to be explained why these preterits could develop a voiceless Verner variant if they were unaccented most of the time.

138. This observation and the following considerations are the product of a fruitful discussion with Eugen Hill (Munich, p.c.) whom I would like to thank especially for his valuable contributions.
139. The irregular cases in (7) above are omitted from this synopsis because the process of regularization in these cases works exactly as proposed in the main text.
140. This Old High German doublet reflects Gmc. ⁺*hwerba*-/⁺*hwerfa*- 'turn to' (cf. Seebold 1970: 282).

- b. voiced Verner variant in the present, but voiceless variant in the preterit

OHG *swelgan*, *swalh*, –, *swolgan* ‘devour’¹⁴²

Goth. *standan*, *stōþ*, *stōþum*, –

- c. voiceless Verner variant in the present, but voiced Verner variant in the preterit

OHG *heffen*¹⁴³, *huob*, *huobun*, *gihaban* ‘lift’

The paradigms in (9a) look perfectly regular, but it is remarkable that they display the voiced Verner variant in the preterit singular. As levelling after the preterit plural is improbable, and the position of a putative Indo-European *zero grade perfect* is unheard of, it is likely that the verbs in (9a) are the product of a regulatory process. Examples as in (9b) and (9c) are rare, but they suggest an incomplete normalization. In order to explain the forms in (9), it is necessary to examine the normative development more closely. First of all, it has to be pointed out that not for every present an inherited perfect can be assumed, as perfect formation in Indo-European was restricted (cf. 1.1.3 and 1.3). This has rarely been taken into consideration in the literature, but it may be helpful in explaining the regular paradigms in (9a). From a systematic point of view, suffixed and infixated formations could well have inherited perfect formations. The same is true for simple thematic zero grade presents, although there seem to be very few cases attested. One exception is the etymological root of OE *cuman*, IE ⁺*g^hem-* ‘come, arrive’, for which several old perfect formations are attested, the clearest of which is OI *jagāma* (Rix 2001: 209). However, the data strongly suggests that many of the Pre-Germanic zero grade presents did

141. Gmc. ⁺*d* > OHG *t*. The OHG paradigm is the product of a secondary regularization.

142. According to Seebold (1970: 488–489) the preterit is only attested in Old Franconian. In this dialect, post-vocalic or word-final *g* is sometimes spelt *h* due to fricativization (cf. Franck 1971: 136). Therefore, this may not be a peculiar case at all. The paradigm of Goth. *standan* : *stōþ* : *stōþum* clearly evidences an old perfect formation, as the voiceless Verner variant in the plural presupposes a voiceless variant in the singular that was generalized throughout the preterit. If *þ* in the singular was due to regular final devoicing as in Goth. *gaf* ‘gave’, then one would not expect the same process of levelling, as demonstrated by *gaf* (pret. sg.) vs. *gēbum* (pret. pl.).

143. According to Seebold (1970: 244), there also exists a doublet with voiced variant, OHG *heben*. The preterit singular *huob* is often seen as analogical to the plural *huobun*, as Theo Vennemann (Munich, p.c.) points out.

not possess an original perfect, and therefore formed a new perfect on the model of the existing regular ones at a later stage.¹⁴⁴ As the root-final consonant of the present was usually identical to that of the preterit, the newly created perfect would have taken over the voiced Verner variant. Later on, after the introduction of initial accent, the small minority of strong verbs with zero grade roots tended to regularize their root vowel according to the model of the predominant stem formation.

For zero grade presents with original perfects the development is slightly more complex because perfects would have had the voiceless variant in the singular compared to the voiced one in the present. Verbs with a paradigm like this would have been extremely isolated. Given the strong tendency to regularize the ablaut system, the *normalization* of the irregular perfect (= preterit) form would have been natural, although individual cases may have escaped this process (see 7, 9b). Basically, there were two options: either the root-final consonant in the present became voiceless in line with regular Verner verbs, or that of the perfect became voiced along with non-Verner verbs. Of these, the first solution is *a priori* unlikely because the zero grade root presupposes the absence of stress in Pre-Germanic, which means that the model for the analogical change would have to have a zero grade root as well as a root-final voiceless Verner variant, a combination that is improbable. This makes it unlikely that the present stem replaced its voiced Verner variant with a voiceless one because there was no model for the analogical change (see fn. 146 for the case of Goth. *fraihnan*).¹⁴⁵

By contrast, non-Verner verbs could also have root-final consonants that looked like voiced Verner variants, i.e. *b*, *d*, *g*, providing a perfect model for a regularization of the isolated paradigms. As a result it is highly likely that the Pre-Germanic preterit took over the voiced Verner variant. Consequently, the majority of zero grade presents in Pre-Germanic would have developed a regular perfect with a voiced Verner variant as root-final consonants just like verbs that were not subject to Verner's Law. In this process some original zero grade presents survived, sometimes with regular doublets as shown in (9), but the vast majority of original zero grade pre-

144. As mentioned above, the formation of the perfect in Indo-European seems to have been restricted to telic roots, but this limitation was given up in post-Indo-European times so new perfects could be formed (see e.g. Rix 2001: 23).

145. Nevertheless, cases like OHG *heffen* 'lift' could perhaps be explained like that; although a very early levelling and the existence of a doublet in Germanic have to be assumed.

sents look exactly like the strong verbs that display a root-final voiced stop going back to an Indo-European voiced aspirated stop. The full development is summarized in (10):

- (10) Regularization process of original zero grade presents
- A. with existing perfect (without IE perfect reduplicatives)
 1. zero grade present: ${}^+hwurb-$ regular perfect: ${}^+hwarf-$
 2. regularization of perfect: ${}^+hwurb- : x = {}^+spurn- : {}^+sparn$
($x = {}^+hwarb-$)
 3. regularization of present: ${}^+geba- : {}^+gab- = x : {}^+hwarb-$
($x = {}^+hwerb-$)
 - B. with new perfect (reduplicatives in the IE perfect are omitted)
 1. zero grade present forms new perfect after existing model:
 ${}^+hwarb-$ after the model of ${}^+gab-$
 2. regularization of present: ${}^+geba- : {}^+gab- = x : {}^+hwarb-$
($x = {}^+hwerba-$)

It has to be noted that the development in (10) also works for verbs without root-final Verner consonants, such as OHG *queman*. Complete sets of doublets, such as OHG *werban* vs. OHG *werfan* ‘turn to’, OHG *phlegan* vs. OE *plēon* (< ${}^+plehan$ with contraction after loss of intervocalic *h*) ‘dedicate, employ’, Goth. *standan* vs. OHG *stantan* both ‘stand’ may well reflect different directions of analogical change.¹⁴⁶ From this discussion it follows that the uniform character of the strong verbs is to a considerable extent the result of a process of regularization that completely obscured

146. Since OHG *werban/werfan* ‘turn to’ and OHG *phlegan* ‘care’ do not have good Indo-European etymologies, the doublets may as well reflect different adaptations from a non-Indo-European source etymon, which is common in borrowing processes. Vennemann (1998b) suggests a loan etymology for Gmc. ${}^+plega-$ from Semitic (cf. also chapter four) and outlines reasons for the possible phonological deviations in the process of borrowing. However, Eugen Hill (Munich, p.c.) informs me that the parallelism of a zero grade simple thematic present and a full grade simple thematic present might also go back to the parent language. Accordingly, a root spawns two originally semantically motivated presents, a $R(z)-\acute{e}$ -present and a $R(\acute{e})-e$ -present, as attested in OI *tirāti* ‘gets through’ ($R(z)-\acute{e}$ -present) vs. *tāratī* ‘comes through, overcomes’ ($R(\acute{e})-e$ -present). For the cases mentioned in the text, however, no such attestations exist, although the proposal is in principle plausible. The contrast in root-final consonants between OE *fregnan* and Goth. *frāihnan* ‘ask’ is probably due to the fact that Gothic usually eliminates the effects of Verner’s Law by generalization of the voiceless variant.

earlier differences in stem formation, and which has left traces in the form of irregular features. This strong tendency towards uniformity has never been sufficiently explained from an internal point of view.

4.3. The extent of the regularization of original zero grade presents

One important result of the discussion in the preceding section is that there are a number of completely regular strong verbs for which nonetheless an original zero grade present has to be assumed, exactly as pointed out by Prokosch (1939: 149), quoted in 4.2.1 above. However, what is the extent of this normative development? Prokosch (1939: 149) already suspected that zero grade presents were “doubtless more frequent in Pre-Germanic than in the historical forms of Germanic”. This is contrary to the general opinion on the historical make-up of the Germanic strong verbs, which views the $R(\acute{e})$ - e -type as the underlyingly predominant type (see e.g. Bammesberger 1986: 3). As Jarosch (1995–: cxxcviii *et passim*) notes, a strong verb whose root-final consonant is subject to Verner’s Law should display the voiceless variant in the present and the preterit singular.

Starting with this observation, Jarosch (1995–: clxxxiii fn 12 *et passim*) claims that there is an anomaly within the system of strong verbs, which he labels *core anomaly* (“Kernanomalie”). Accordingly, the verbs in classes I to III, i.e. the majority and the chronological core (primary system) of the strong verbs, exhibit a significantly higher number of root-final voiced Verner variants in the present and the preterit singular than voiceless ones. If an equal distribution of consonants is assumed for the parent language, it is peculiar that Germanic should show this striking imbalance between voiced stops (< IE voiced aspirated stops) and voiceless fricatives (< IE voiceless stops). After making this claim, Jarosch (1995–: clxxxiii) even goes so far as to posit the complete lack of root-final voiceless fricatives due to their insignificant frequency. According to Jarosch, in numerous cases the root-final voiced stop in a verb of classes I to III is due to Verner’s Law, i.e. it goes back to an Indo-European voiceless stop (via Verner’s Law) rather than to a voiced aspirated stop. Consequently, these verbs originally formed a zero grade present, and the predominant $R(\acute{e})$ - e -type in these cases must be secondary. Based on this *core anomaly*, Jarosch (1995–: cxiv–cxviii) posits more anomalies within the corpus of strong verbs, all of which in Jarosch’s opinion show that at a Pre-Germanic stage the vast majority of strong verbs – Jarosch (1995–: dx xvii, fn 804): “95%” – go back to zero grade presents, and that the predominance of the $R(\acute{e})$ - e

type is the result of an extensive process of normalization, which does not reflect the original state.

- (11) Selected anomalies of the Germanic strong verbs (Jarosch 1995–: cxiv–cxvii)
- a. the *ū*-verbs in class II never show a root-final voiceless Verner variant
 - b. several regular verbs in class II have *ū*-doublets
 - c. phenomena of *ablautentgleisung* (see also 1.1.3 above)
 - d. some strong verbs go back to *a*-roots, the *e*-grade is secondary
 - e. strong verbs possess surprisingly few cognates among the related languages

It is obvious that the conclusion arrived at by Jarosch (1995–) would have dramatic consequences for the reconstruction of the Germanic verbal system if it could be confirmed. Therefore, a closer examination is necessary. Jarosch (1995–) advances mainly two arguments in support of his proposal, i.e. that the majority of the Germanic strong verbs go back to a zero grade present. First, there is the “Kernanomalie” mentioned above and other traceable effects of Verner’s Law. Second, according to the reconstructive identification of the *tudāti*-present (< root-reduplicated root-present) as the *missing link* between aorist roots and thematic presents (cf. Jarosch 1992), any strong verb going back to an aorist root is *a priori* likely to have had an original *tudāti*-present. However, this second argument is not reliable. Although the reconstructive problem posed by the entire complex revolving around the so-called process of thematization has not been solved so far, there are in principle several ways conceivable how an originally aoristic root could have ended up with a thematic present stem formation in Germanic, especially given the extreme timespan stretching from the Indo-European parent language to the Germanic period (cf. 4.2.1 above). At best the existence of thematic presents belonging to aoristic roots reflects an ambiguous indication of some normative process, but it does not permit the automatic inference of an original zero grade present. Thus, there remain cases that show the effect of Verner’s Law on the root-final consonant in the present and the preterit singular forms, which – apart from clear cases showing zero grade, e.g. Gmc. **wiga-* ‘fight’, OE *cuman* ‘come’ and Gmc. **diga-* ‘knead’ – can be taken as a safe indicator of an underlying zero grade stem formation (cf. Prokosch 1939: 149 and Bammesberger 1984:

3).¹⁴⁷ Hence, it seems logical to examine the evidence Jarosch (1992, 1993a, b, 1995–) advances for his “Kernanomalie” and the other proposed anomalies in (11), focusing on the voiced Verner variants.

Volume XI of the *REW* (= *Rekonstruierendes und etymonomisches Wörterbuch der Germanischen starken Verben* = Jarosch 1995–) counts 39 voiceless and 94 voiced Verner variants (i.e. voiceless fricatives vs. voiced stops) in classes I to III compared to 121 voiceless stops (Jarosch 1995–: dcix). It has to be noted, however, that the term “Verner variant” as used by Jarosch is potentially misleading. The 94 cases cited include real Verner variants, i.e. reflections of Indo-European voiceless stops, as well as voiced stops going back to Indo-European voiced aspirated stops, which, however, do not permit a reliable basis for the reconstruction of an original zero grade present because they are not affected by Verner’s Law. As Jarosch (1995–: ccli), quoting Gamkrelidze and Ivanov (1995: 13), notes, the distribution of the consonant groups was probably not equal, i.e. voiceless stops, voiced stops and voiced aspirated stops did not occur with a frequency of 33% each, rather the proportions were probably 17.7 %, 6.2 % and 8.9 % respectively (see also Birkhan 1979: 16–19). Therefore, it seems striking that Germanic should have inherited only a small proportion of the most frequent consonants in the parent language.¹⁴⁸ If the figures from sections 3.1.3 to 3.1.5 of this study are compared to those of Jarosch (1995–) the high frequency of voiceless stops is obviously the most apparent. In all three classes this is by far the most frequent group of root-final consonants, which is peculiar, especially in comparison to the figures for the parent language, as Jarosch (1995–: ccli) also notes.

However, the quantitative analysis undertaken in this study does not confirm the extreme imbalance of voiceless fricatives vs. voiced stops asserted by Jarosch (1995–). In classes I and II (see 3.1.3 and 3.1.4) there is only a very slight majority of voiceless fricatives (slightly more than 25% vs. 25%). Only in class III (see 3.1.5) there is a bigger gap between these consonant classes (28% for the voiced stops and only 14% for the voiceless fricatives). Thus, it cannot be agreed with the statement in Jarosch (1995–: clxxxiii), claiming that voiceless fricatives as root-final consonants are

147. Recall that verbs reflecting Indo-European voiced stops (> voiceless stops in Germanic) cannot be analysed that way because Verner’s Law did not affect this group of consonants.

148. To be sure, however, in principle, this could be a mere coincidence as Germanic could simply have inherited only the verbs showing the distributional pattern described by Jarosch (1995–).

absent from the corpus of Germanic strong verbs. Even the figures given by Jarosch (1995–: dlv) himself do not permit this interpretation: 39 voiceless Verner variants vs. 94 voiced Verner variants cannot be analysed as “ganz vereinzelt” (‘extremely singular’) as in Jarosch (1995–: clxxxiii). Moreover, the figures for the voiceless Verner variants in Jarosch (1995–: dlv) do not include Gmc. ⁺s, despite the fact that it is subject to Verner’s Law. The only reason Jarosch gives for this exclusion is the sweeping claim that Germanic always levels the Verner opposition ⁺s vs. ⁺z in favour of the voiceless variant (Jarosch 1995–: 47 fn 193). On closer scrutiny, this is only potentially correct in three out of 13 possible cases if the attested forms are considered. For ⁺keusa- ‘choose’ and ⁺kreusta- ‘crunch’ nearly all possible Indo-European cognates exhibit zero grade, although ⁺kreusta- does not have an Indo-European etymology (see chapter three and Appendix B). Furthermore, ⁺hreusa- ‘quiver’ may have forms in Old Norse with zero grade and voiced Verner variants. The remaining cases do not substantiate the assumption of an original zero grade present, because there are neither doublets nor telling cognates with zero grades. Moreover, there are at least three cases where the ‘voiced’ Verner variant can be found in the present: Gmc. ⁺skersa- ‘scrape’ (Seebold 1970: 416, Jarosch 1995–: 237–238), ⁺pwersa- ‘dwindle’ (Seebold 1970: 529, Jarosch 1995–: 238 fn 1026, 333) and ⁺wersa- ‘confuse’ (Seebold 1970: 559, Jarosch 1995–: 343). The attested OHG *skerran*, ON *þverra* and OS/OHG *werran* alongside the nominal forms with the ⁺-rs- cluster suggest that the geminate in the verbs really reflects a ‘voiced’ Verner variant (Gmc. ⁺rz > WGmc. ⁺rr). These are clear counter-examples to the position by Jarosch (1995–: 47 fn 193) that ⁺s : ⁺z is always levelled in favour of the voiceless variant.¹⁴⁹

However, even if this were correct, it still remains unclear why ⁺s should be excluded from the group of voiceless Verner variants. It is apparent that it is highly problematic from a methodological point of view to conduct an analysis comprising only a part of the relevant data. If ⁺s is included as a voiceless Verner variant, then the imbalance becomes even less extreme: 52 cases of voiceless variants vs. 94 cases of voiced variants equals a ratio of 1:1.8, which is significant but nowhere near the verdict

149. Another case may be Gmc. ⁺þersa- ‘dry’, as there are derivatives with *-rr-* but unfortunately no strong present forms (Seebold 1970: 515) that point to a zero grade present. Lühr (1976: 73) rejects a reconstruction of *-rr-* in OHG *werran* ‘confuse’ from Gmc. ⁺-rz- without reason, and prefers an onomatopoetic gemination, which is clearly *ad hoc*. Jarosch (1995–: 325) reconstructs an original zero grade present with secondary regularization (cf. 4.2.2 above).

given by Jarosch (1995–) cited above. Furthermore, it has to be kept in mind that voiced stops in Germanic have two historical sources, voiced aspirated stops and voiceless stops (via Verner's Law), whereas all voiceless fricatives except *s* can only go back to voiceless stops. This decreases the imbalance even further, because from the total number of 94 the cases that definitely have to be reconstructed with an Indo-European voiced aspirated stop (not subject to Verner's Law) have to be deducted. For example in Gmc. ⁺*steiga-* 'ascend' the reconstruction unambiguously points to IE ⁺*g^h* and not to ⁺*k* (see Seebold 1970: 466–467) nonetheless this verb is listed as displaying a voiced Verner variant in Jarosch (1995–: 282). In addition, all those verbs for which neither a voiceless Verner variant nor an unaccented root is attested either within or outside Germanic cannot provide any safe indication of an original zero grade present. If these verbs are excluded, then there remain 15 cases in which the voiced stop probably reflects a voiced Verner variant as root-final consonant in the present or preterit singular stem. Consequently, these verbs are highly likely to have formed an original zero grade present.

As a result there are 15 newly discovered aorist presents. These have to be added to the obvious cases, displaying a zero grade root, such as ⁺*diga-* 'knead'. Thus, the total amount of strong verbs that have to be reconstructed as possessing an original zero grade present is 21 so far (cf. the list in Appendix A). Note that this comprises only cases for which either a visible zero grade is attested (in Germanic or secure cognates), or a voiced Verner variant in the present stem can safely be assumed due to the existence of doublets or securely related forms.¹⁵⁰

Although the interpretation of the Germanic strong verbs given by Jarosch (1995–) can only be corroborated for a limited amount of cases so far, this is nonetheless a significant discovery clearly showing a considerable uniformization of the corpus of Germanic strong verbs. The drastic

150. One has to be careful to keep in mind that separate phonological developments render variants which could be misinterpreted as Verner variants: Theo Vennemann (Munich, p.c.) reminds me that e.g. OHG *clufti* 'chasm' (cf. Jarosch 1995–: 133f) displays the regular Pre-Germanic change IE ⁺*b+t* > IE ⁺*pt* > Gmc. ⁺*ft* (see e.g. de Boor and Wisniewski 1985: 36) and is not a Verner variant to OHG *klioban* 'cleave'. Eugen Hill (Munich, p.c.) correctly points out that the interpretation of OE *smēah* as Verner variant to OE *smūgan* 'creep, cuddle' in Jarosch (1995–: 256) is precluded because <h> in this case reflects a voiceless fricative resulting from word-final devoicing of fricatives in Old English (see e.g. Brunner 1965: 176–177).

conclusion drawn by Jarosch (1995–) is mainly due to the fact that he automatically posits a zero grade present if the reconstructed root is either nominal or aoristic. This is largely because of Jarosch's hypothesis about the link between aoristic roots and simple thematic presents (see Jarosch 1992 *et passim*), which, however, goes well beyond the scope of this study, and which consequently will not be discussed here. Thus, on the basis of the Verner variants – a clear indication of an underlying zero grade present – Jarosch's core anomaly cannot be supported in its extremity. However, the existence of a drastic and fairly extensive process of normalization, in which the stem formation of the Germanic strong verbs was uniformized in accordance with one inherited model, can be confirmed.

Beside the Verner-cases just discussed, the anomalies in (11) contain predictions for a distinct group of strong verbs that has been the subject of numerous studies. (11a) posits that the *ū*-forms of class II reflect an earlier zero grade, since they never possess voiceless Verner variants as root-final consonants in the stems of the present and the preterit singular (cf. Jarosch 1995–: 20). Apart from one possible counter-example (⁺*dūfa*-/⁺*dūba*- 'dive')¹⁵¹ *ū*-forms never show a voiceless fricative as root-final consonant; they only display voiceless and voiced plosives. In the latter group four roots exhibit actual Verner variants, while the remaining ones go back to a voiced aspirated plosive (not subject to Verner's Law). However, it is peculiar that they all have doublets in different dialects showing the regular diphthong of class II: OE *būgan* vs. OHG *biogan* 'bend', MDu *cluven* 'nibble' vs. OHG *klioban* 'split', OE *smūgan* 'creep, cuddle' vs. ON *smiūga* 'to put on a garment'. The material in Seebold (1970) clearly indicates that the root-final consonant of these *ū*-verbs is a voiced Verner variant (see also Appendix A). According to the characteristic features of a zero grade present summarized in (8), the discovery of a voiced Verner variant in the root-final consonant of a present or preterit singular stem evidences an underlying zero grade. The regular forms have then to be interpreted as results of normalization (see e.g. Jarosch 1995–: 239).

From this data and his theoretical reconstructional hypothesis, Jarosch (1995–: cxiv) concludes that all *ū*-forms reflect original zero grade presents with a secondary root vowel. The motivation for this development, according to Jarosch, is mora restitution on the one hand and the need of clear marking of the present stem in contrast to that of the preterit plural on the

151. Seebold (1970: 155) prefers ⁺*dūfa*- to ⁺*dūba*- because the root-final consonant cannot be exactly determined due to the situation of attestation (see also Jarosch 1995–: 40).

other. There are several studies on this irregular vowel in class II, all attempting to explain this irregular root vowel in class II:

- (12) Proposed explanations of $\bar{u}$ -forms
- a. late Germanic analogy after long vowel in class I (e.g. Krahe 1967: 23; Rix 2001)
 - b. original *tudāti*-present or other zero grade present with partially normalized root (e.g. Prokosch 1939: 150; Kuryłowicz 1964: 237; Vine 1985 and Jarosch 1992, 1995–)
 - c. reduced or zero grade of a (long) diphthongal root (Birkhan 1985: 141 and Prokosch 1939: 150)

The hypothesis in (12c) disregards the etymological facts, as original diphthongal roots cannot be assumed for all $\bar{u}$ -verbs. (12a) is problematic because it is unclear why there are virtually no $\bar{u}$ -verbs with root-final voiceless fricatives. As Jarosch (1995–: cxiv) points out, completely regular verbs (with original R(ē)-e stem formation) should occasionally be subjected to the generalization of the lengthened grade, but this never occurs. In addition, it is peculiar that only North-Western Germanic languages seem to have the long vowel variant, though otherwise being often conservative. If an analogical change of regular $^+eu > ^+\bar{u}$ after class I is assumed, one would expect this development at least occasionally in other dialects as well. Finally, Peridan (2001: 31) correctly points out that an analogical development should also alter zero grade presents in class I, such as ^+wiga -‘fight’ or ^+digan ‘knead’, which, however, is not regularly the case.

The suggestions in (12b) differ according to the motivation for the proposed development. Prokosch (1939: 150) simply posits analogy according to the model of class I (IE $^+e_i >$ Gmc. $^+\bar{i}$). Vine (1985: 60) largely follows Kuryłowicz (1968: 237) in arguing for the restitution of *u* from the original zero grade in a diphthongal root, e.g. $^+luka- > ^+luuka- > ^+lūka-$ ‘shut’. However, as Vine (1985: 61) himself notes, the existence of zero grade presents without vowel restitution, e.g. Gmc. $^+truda-$ ‘tread’ and OE *cuman* ‘come’, is a counter-argument to his proposal. This is why he tentatively suggests that the $\bar{u}$ -variant and its regular version originally are functionally motivated doublets. However, the data does not necessarily support this interpretation. Firstly, there are $\bar{u}$ -verbs without a regular doublet and vice versa. This means that Vine (1985) presupposes that in some cases one doublet was lost, with the circumstances of this process being left unexplained. In addition Vine (1985) cannot account for the high concentration of $\bar{u}$ -verbs in North-West Germanic. Secondly, it seems odd that this functional differentiation occurred only in class II, and apparently was not

used with other zero grade presents belonging to other classes. These considerations present serious problems for Vine's (1985) hypothesis. By contrast, Jarosch (1992, 1995–: 239) proposes the lengthening of zero grade C_1uC_2 -roots at some stage in Pre-Germanic, since class II requires a heavy root syllable (mora restitution). In addition, the system of strong verbs exhibits a very strong tendency to differentiate the present and preterit by different root vowels.

In view of the data, Jarosch's (1992, 1995–) approach offers the most plausible explanation. First, the structural requirements of an ablaut class are relatively strong because verbs are categorized solely on the basis of their phonological root structure. As will become clear further below, zero grade verbs that did not have the possibility of forming a $\bar{u}$ -variant display a striking variation of class assignment. Second, the option of simply keeping the inherited zero grade, which was phonotactically unproblematic for a diphthongal root, would have resulted in an identical root-vowel in the stem of the present and the preterit plural. As stated above, this is highly problematic for the system of strong verbs, as it is a cardinal requirement that the root vocalism of the present and of the preterit should be distinct.

However, there are two verbs that seem to contradict Jarosch's hypothesis, namely Gmc. $^+wiga-$ 'fight' and $^+diga-$ 'knead', which are both traditionally associated with class I despite the lack of the required vocalism (cf. e.g. Seebold 1970: 45). A look at the material (Seebold 1970: 151) reveals that Gmc. $^+diga-$ is represented verbally only in Gothic *digan*, but due to the lack of inflected preterit stems (only past participle Goth. *gadi-gans*) its class, either I or V, cannot be determined (class I in Seebold 1970: 45 and Braune 2004a: 150). The fact that there are nominal forms with a diphthong pointing to class I does not necessarily mean that the Gothic verb actually inflected like a class I verb. In fact, it is likely that it patterned with class V, given the regulatory tendency in Gothic. The examination of the attestations of $^+wiga-$ 'fight' are instructive here (cf. Seebold 1970: 544–555).

(13) Forms of Gmc. $^+wiga-$

- a. $^+wiha-$: Goth. *andwaihan* 'conflict' (class I)
- b. $^+wiga-$: ONor. *viga* 'fight'
- c. $^+wega-$: ON *vega*, OE *-wegan* 'fight'
- d. $^+weha-$: OHG *ubarwehan* 'overcome'
- e. $^+weiga-$: no strong verb forms; weak verb OE *wāegan* 'torment, sadden'
- f. $^+weiha-$: Goth. *weihan* 'fight'

Goth. *weihan* and OHG *-wehan* are examples of a complete regularization after classes I and V. By contrast, Old Norse has two class V variants, one with *e*-full grade but with voiced Verner variant, *vega*, and another with *i*, *viga*. Again, nominal derivatives show a diphthongal vocalism reflecting class I, but because verbs are categorized according to root structure, doublets can appear in different classes. This only proves the existence of a verbal form belonging to class I at some stage in Germanic history. The fact that Gothic has a regular class I variant does not prove the archaism of this inflection. This is because Gothic often shows heavier and more frequent regularization than most other Germanic dialects (see e.g. the complete levelling of Verner's Law in the regular strong verb system). Moreover, nominal forms of this root also display the variant with zero grade and voiceless Verner variant. One conclusion from this is that ⁺*diga-* and ⁺*wiga-* are probably no exceptions; these particular forms belonged to class V rather than I, and thus did not require heavy root syllables. The only form that has to be put in class I because of its root structure, Goth. *weiha-*, is completely regular.

The result of the above discussion is that the hypothesis by Jarosch (1992, 1995–: cxiv), explaining the Germanic *ū*-verbs as partially regularized zero grade presents allows a correct interpretation of the data. In several cases these zero grade verbs have completely normalized doublets, e.g. OE *scūfan* vs. OHG *skioban* both 'push' (see also chapter three). Consequently, the different forms go back to a zero grade present that underwent several layers of regularization. Of these the *ū*-variant clearly is the *lēctiō difficilior* and is thus likely to be older, supported by its comparatively sparse and areally restricted attestation. Conversely, the completely regularized forms are probably the result of a secondary regularization of existing *ū*-forms, or may also have been an alternative to mora restitution used at the same time. Furthermore, the attestations of Gmc. ⁺*wiga-* 'fight' permit the inference that another motivation for the normalization of root vocalism was to prevent confusion as to the assignment of a strong verb to an ablaut class.

There is another group of verbs where the effect of Verner's Law is a potential indicator of an original zero grade formation, namely verbs containing the element *-da/pa-* such as ⁺*falpa-* 'fold', ⁺*haldā-* 'hold', ⁺*skalda-* 'push'. As Seebold (1970: 182) notes, only ⁺*falpa-* has to be reconstructed with a voiceless fricative, all other verbs of this group show ⁺*d* evidencing the absence of stress, which at the same time suggests the existence of a zero grade present before the fixation of accent. For Gmc. ⁺*haldā-*, Hill (2005) convincingly argues for an underlying zero-grade present (cf. also Jarosch 1995–). Thus, it seems probable that the remaining

Jarosch 1995–). Thus, it seems probable that the remaining *-da*-verbs likewise belong to the group of zero grade presents with subsequent regularization.

By contrast, the phenomenon that some Germanic strong verbs display *e*-grade of the root, but belong to primary *a*-roots (cf. 11 d) will not be addressed here because the only tangible case with a voiced Verner variant is ⁺*geba*- ‘give’, which, however, does not have a completely secure Indo-European etymology (cf. Appendix B). As a result, any proposition of a zero grade present in this case is insufficiently substantiated.

To sum up, the corpus of strong verbs contains a total of 64 verbs for which an original zero grade present can be securely posited. Although this number is considerably higher than that found in the handbooks, it does not justify Jarosch’s (1995–) conclusion that 90% of all strong verbs have to be reconstructed as original zero grade presents. Nonetheless, the fact that most cases underwent regularization of the root vowel is a vivid illustration of the heavy and thorough process of normalization that occurred in the development of the strong verbs. The existence of simple thematic presents, either of the R(*é*)-*e* or the R(z)-*é* type, belonging to aorist roots, as well as the process of thematization in general, are problems that surface especially in Germanic. Nonetheless, they can only be solved from a diachronic and comparative perspective going well beyond the limits of this study. What this section has demonstrated is the extent to which ablaut was systematized in the Germanic strong verbs. This development entailed the consistent remodelling of the language’s primary verbs according to the model of one Indo-European stem formation. As a result the various types of Indo-European stem formations became defunct, and so experienced subsequent normalization. However, the regularization of zero grade presents clearly occurred in a significantly higher number of cases (over 10% of the total number of strong verbs) than commonly assumed, which demonstrates the normative force of this process. Moreover, the subgroup of *ū*-verbs in class II in all probability also goes back to original zero grade presents, and thus is evidence of a partial regularization. This also is valid for the *-dan* verbs, such as Gmc. ⁺*hlada*-, ⁺*halda*-, etc., where the process of normalization was more thorough.

5. Summary of chapter two

The main results of this chapter can be summarized as follows. First, section one illustrated the fundamentally different roles ablaut and reduplica-

tion play in Indo-European and Germanic. It was shown that ablaut in Indo-European assumes a fairly insignificant position, being largely redundant and recessive as a concomitant of a type of stem formation. Reduplication, by contrast, constitutes an integral part of verbal morphology, as it is used to form aspectual stems. However, in Germanic, not only does ablaut express grammatical categories directly and distinctively (functionalization), but it also acts as a strict ordering device assigning a verb a specific ablaut pattern based on phonological root structure (systematization). It was also pointed out how typologically similar this situation is to that of Semitic languages, serving to emphasize the fundamental difference between Germanic and Indo-European in this regard.

Second, the Germanic strong verbs were presented as a highly regular system, highlighting the internal organization and the intricate internal structure, which included class-by-class investigations. The exact mechanism of this system was explained, and its irregularities were examined. Accordingly, a strong verb belongs to one of three subsystems based on root structure. This determines its ablaut pattern, i.e. the shape the root vowel assumes in a temporal stem. Thus, the root vowel is subject to regular alternations according to the requirements of the pre-defined ablaut pattern, i.e. the grammatical category it indicates. One important conclusion drawn from this was that the obvious typological difference between Germanic and Indo-European concerning the position of verbal ablaut is significant, and has to be accounted for.

Third, as section four argued, the development of the highly organized system of strong verbs is the result of a process of heavy regularization and uniformization, involving considerably more verbs than commonly assumed. Alterations include the complete reshaping of verbal stems according to the requirements of the relevant ablaut pattern and the model of one Indo-European stem formation, the $R(\acute{e})-e$ present. However, contrary to the general opinion, the number of verbs with an originally different stem formation must have been considerable. Apart from the thematization of athematic formations, the most frequent type of regularization is the normalization of the root vowel, either in suffixed formations or in zero grade thematic presents. In particular the latter group was originally far more numerous, though it probably did not constitute the majority (*pace* Jarosch 1995–). Nevertheless, it contained enough types and tokens to leave traces of the process of normalization. Especially the case of the semi-regularized $\bar{u}$ -forms demonstrate the integrative power of ablaut and the systematic requirement to differentiate verbal stems by ablaut in a transparent manner.

As also demonstrated in this chapter, one important *leitmotiv* for the development of the strong verbs seems to have been their systematic organization. The other persistent tendency was to ensure a high degree of transparency and predictability with a minimum of morphological variation and a maximum of efficiency. Along these lines the entire verbal material was uniformized, leaving few, yet telling traces behind. This massive process of transformation led to a completely new typological structure in this part of the grammatical system. Due to the difficulties of the internal explanation, some authors have wondered about non-Indo-European influence, or at least considered some sort of contact phenomenon (cf. chapter one). The morphological analysis carried out in this chapter can contribute some conspicuous data on the peculiarity and uniqueness of the Germanic situation, and can at the same time highlight the problems that existing proposals are facing. The thoroughness of this process of heavy normalization and uniformization that also integrated borrowed material may point towards a situation of language contact, as already suggested by Stedje (1987) and Vennemann (1998a, 2000).

As Werner (1984) and more specialized literature on language contact argues, strong over-generalization and schematization is rather an indication of language contact than of isolation and organic development (see e.g. Appel and Muysken 1987; Thomason and Kaufman 1988; van Coetsem 2000; Winford 2003; Sankoff 2004; Heine and Kuteva 2005). This holds particularly true for processes of uniformization, i.e. the reduction of the number of variations, which, according to van Coetsem (2000: 182) is a string indication of language contact. Moreover, van Coetsem (2000: 203) describes Germanic as “remarkably regular and uniform”, and goes on to explain the even greater regularity and uniformity of Gothic as a result of language contact (2003: 205–212). However, although the morphological data in principle supports an approach involving language contact, by itself it is not enough evidence to vindicate such a strong proposal. This is the reason why the following chapter will deal with the etymological situation of the Germanic strong verbs, because it is clear that this data will have a significant influence on any proposed explanation for the morphological phenomena just discussed.

Chapter three

Inheritance vs. acquisition: The etymological situation of the Germanic strong verbs

The etymological relations of Germanic have been the subject of numerous studies. Especially the primary verbs of Germanic have always attracted the attention of etymologists. This chapter examines the etymological situation of the strong verbs from a quantitative and qualitative point of view. Despite the vast amount of work on the etymological problems of the Germanic strong verbs, and although the corpus has been researched quite thoroughly, there is still a great deal of unconsolidated knowledge about the quantitative side of the etymological situation. Although the existing etymologies can be evaluated qualitatively, this has never been done on a systematic and transparent basis using specified criteria based on recent data. Likewise, with the exception of a 19th century study of the German lexicon the quantification of an etymological corpus of Germanic has never been attempted so that the only quantitative data available is either dated or based on estimates.

Needless to say, this situation is far from ideal. In particular, the disparate, almost pre-scientific knowledge on the amount of strong verbs without an accepted etymology is detrimental to the discussion on the genesis of Germanic mentioned above. This is all the more peculiar since a quantitative analysis could well determine whether the strong verbs are to be removed from the discussion, or whether instead they form a vital part of it. At any rate, the commonly accepted estimate as to the proportion of non-Indo-European words in the entire Germanic lexicon (around 33%, cf. chapter one above) appears high enough to justify a quantitative investigation. The aim of this part of the study is, firstly, to provide some thoughts on the qualitative and quantitative evaluation of etymologies and, secondly, to quantify the existing etymological data on the strong verbs so that it will be possible to determine the exact proportion of etymologized vs. non-etymologized material according to the latest etymological evaluations. Furthermore, the Germanic result is compared to that of Sanskrit and Ancient Greek, whose primary verbs are also quantified, using the same method. This is done to guarantee the validity and reliability of the Germanic results while providing a comparative evaluation at the same time.

This chapter is structured as follows: section one contains a brief survey of etymology as a linguistic field and its connection to Germanic in general. In section two the previous research on the etymology of the strong verbs is briefly reviewed, stating the most important results. Section three presents and illustrates the method used in this study. The results of the quantitative investigation are given and discussed in section four, which also includes the comparative investigation of Sanskrit and Ancient Greek. In section five the entire chapter is summarized.

1. Etymology and Germanic

1.1. Etymology as a linguistic discipline

As Malkiel (1993: 1) remarks, the term *etymology* with reference to a field of linguistic research has been filled with a variety of contents throughout the history of its use. This history cannot be presented here in its entirety for reasons of limited space and different focus of this work. The reader may therefore consult Malkiel's comprehensive study on the history of etymology as a linguistic discipline, particularly in the 19th and 20th century.¹⁵² Despite the terminological variation, however, the 'linguistic' meaning of *etymology*, as Malkiel (1993: 1) points out, has always been "something approximating to the paraphrase 'original meaning, or use of a given lexical unit or proper name'". After etymology had constituted itself as an independent linguistic discipline, undertaking specialized research for its own sake rather than as a part of studies in comparative grammar and lexicology, it reached its peak at the beginning of the 20th century. In the Neogrammarian reconstructive approach words were traced back to their *Urschöpfung* (original creation), a term coined by Hermann Paul. Roughly at this time and largely through the impact of French and Belgian scholars, who "plunged into historical linguistics" (Malkiel 1993: 26), a bifurcation of etymological studies emerged, for which Birkhan (1985: 25) uses the terms "Herkunftsetymologie" ('etymology of origin') and "Geschichte des Wortes" ('word history').

The main differences between the two approaches can be summarized as follows: Birkhan's "Herkunftsetymologie" has a retrograde perspective. It starts with the earliest attested form and works its way back to the point

152. For an account starting with Plato's discussion of etymology, see e.g. Birkhan (1985: 37–52).

where the word originated in a reconstructed proto-form of a given language. This method focuses on the formal aspects, i.e. phonology, morphology and, to a lesser degree, the syntax of a lexical entity, with semantic and pragmatic considerations frequently being of secondary significance. The retrograde method of “Herkunftsetymologie” is what will be referred to as *etymology* in this study, since it is concerned with the origin of a word, which is also in the focus of the present study, and also because this seems to be most compatible with the term’s original meaning. Furthermore, in the historical context this seems to be the smallest common denominator on which to base a definition of the term *etymology*.

By contrast Birkhan’s “Geschichte des Wortes” is concerned mainly with the semantic change of a particular lexical entity, and follows it through history, either from the present meaning back to that of its earliest attestation or its reconstructed original form, or, more often, from a given point in history (earliest attestation/origin) to the present stage of the language. Consequently, this branch of etymology is called *Word History* in the present study. Nonetheless, as Birkhan (1985: 25) notes, although both approaches are usually not equally represented in a diachronic investigation, they are actually interdependent and complementary, at least to some degree. Therefore, etymological studies generally do take notice of a word’s semantic development, and investigations into a word’s history cannot completely neglect formal considerations. The pioneers in linguistics seem to have been aware of this as they employed a more comprehensive, integrative (Malkiel 1993: 9) approach, realizing that in order to conduct proper etymological investigations one has to be an “all-round historian” (Malkiel 1993: 9), combining history with studies in comparative grammar, sociology and probably more. Consequently, the result of these pioneer-studies often was an etymological dictionary. As mentioned above, the secession of the purely linguistic etymology from this more comprehensive way of thinking constituted the birth of etymology in the more narrow sense. From this broad differentiation there have originated numerous sub-approaches and variations. In spite of this, the retrograde or reconstructive method can still be viewed as the major content of *etymology*. It has to be noted, however, that the wider perspective brings etymology very close to historical linguistics in general, with the difference being hard to pinpoint (see e.g. Eichner 1988 on etymology as a part of diachronic reconstruction).

In the narrow sense etymology is concerned with lexical items, whereas structural problems, for instance the development of a language’s verb morphology, are generally excluded from this field. However, as the recon-

struction of the origin of a lexical entity is impossible without the incorporation of facts obtained from diachronic structural investigations, and since neither the method nor the perspective differ significantly, one could use the cover term *lexical etymology* for studies devoted to the reconstruction of the origin of a lexical entity and the cover term *structural etymology* for investigations concerned with the reconstruction of the origin of structural properties, such as particular endings, case systems, phonological features, and so forth.¹⁵³ The significance of structural considerations in etymological research becomes apparent in the following definition of etymology in Seebold (1980: 431), who makes it clear that ultimately one deals with historical word formation:

Wenn wir ein Wort etymologisch untersuchen, dann richten wir unser Hauptaugenmerk auf seine Entstehung: Wir suchen zu zeigen, daß es aus einem nachweisbaren Grundwort nach dem Muster eines ebenfalls nachweisbaren Wortbildungstyps geprägt wurde. Solange der Zusammenhang zwischen Grundwort und abhängigem Wort noch voll durchsichtig ist, gehört diese Fragestellung in die Wortbildungslehre der betreffenden Sprachstufe; sobald aber geschichtliche Belege und geschichtliche Überlegungen eine Rolle spielen, befinden wir uns im Bereich der Etymologie.¹⁵⁴

The methods and tools of etymology will be presented and discussed in section 3. Summing up, this study supports the use of the term *etymology* for retrograde and reconstructive diachronic investigations, regardless of whether they focus on lexical or structural elements.

1.2. The position of Germanic in previous etymological research

Although the classical languages, Greek, Latin and Sanskrit have always featured more prominently in the reconstruction of Indo-European, many

153. I owe this distinction and the terms themselves to Theo Vennemann (Munich, p.c., see also Vennemann 2000, 2003a).

154. 'If we examine a word etymologically, we focus on its origin. We attempt to show that it was coined based on an evidenced source lexeme following the model of a type of word formation that is likewise attested. As long as the connection between the base word and the derived word is fully transparent, this is a problem belonging to the domain of word formation of the language examined; as soon as historical attestations and historical considerations come to play a role, we are in the domain of etymology.'

of the methodological foundations and basic facts in the linguistic discipline of etymology have involved Germanic and its daughter languages. One of the first modern sound laws (*Lautgesetze*), Grimm's Law, which was formulated by Jacob Grimm, bearing his name even today, is characteristic of the phonology of Germanic. Throughout the 19th century Germanic occupied a prominent position in etymological studies (see Malkiel 1993: 8–39). However, the discovery of hitherto unknown Indo-European languages, such as Hittite and Tocharian, as well as the decreasing academic influence of German scholars after the First World War also diminished the significance of Germanic in etymological reconstructions (c.f. Malkiel 1993: 42). An additional reason for this development was the notion that Germanic did not seem to share many characteristics of the older Indo-European languages, e.g. in verbal morphology and vocabulary, and was perceived as a rather isolated branch of Indo-European. Compared with other languages sharing these features, such as Hittite and Tocharian, Germanic suffered from the disadvantage of its late attestation, and it was also comparatively well known. Consequently, it was not expected that new historical insights on the Indo-European parent language could be gained from Germanic. Nonetheless, Germanic has maintained a high value for etymological purposes, which can be seen from the fact that the majority of Indo-European roots given by Pokorny (1959) and Mann (1984–87) are attested in Germanic, according to Bird (1993). Apart from the more Indo-Europeanist branch of research, aimed at the reconstruction of the parent language, etymological research into lexical as well as structural features of Germanic is still very much alive, in particular as some of its idiosyncrasies have been examined with renewed vigour in recent years.

2. Etymology and the Germanic strong verbs

The strong verbs are almost unanimously seen as firmly anchored in the parent language, which is expressed e.g. by Meid (1971: 42):

Ein beträchtlicher Teil der Verben, die nach Kl. 1 und 2 gehen, und eine ebenfalls nicht geringe Anzahl der Verben der Klassen 3, 4, und 5 ist – gemessen an ihren etymologischen Entsprechungen und Beziehungen – gemeinindogermanisch. Daran ändern auch häufig festzustellende Verschiedenheiten der Bedeutung und Funktion, und auch formale Unterschiede, z.B. in der Praesensstammbildung, nichts, da diese durch Systemverschiebungen in der langen Geschichte vom Indogermanischen über dia-

lektische Zustände bis in die Perioden der Einzelsprachen bewirkt worden sind.¹⁵⁵

This statement illustrates the focus of traditional research in the field of Germanic etymology, which has largely concentrated on the similarities between Germanic and the parent language, rather than to account for the differences (see Vennemann 2000: 255–256). In spite of the fact that nearly every study on the morphology of Germanic – the strong verbs in particular – notes significant deviations from the patterns reconstructed for the parent language, or observed from the related languages, the *communis opinio* has remained stable, maintaining the view of a Indo-European heritage largely free from external influence.

Due to their central position in the lexicon and the grammar of Germanic, the strong verbs have always formed a prominent subject of etymological studies. As a result, their characteristic morphological features have been well known for quite a while. Most of these can already be found in the classic Germanic grammar books (e.g. Hirt 1931, 1932; Prokosch 1939 and Streitberg [1896] 1963). The more problematic aspects, such as the lengthened grade in classes IV and V, the influence of the aorist and the fate of the reduplicating verbs are still the subject of an ongoing discussion, and several problems have remained unsolved so far (see also chapter two above).

The field of lexical etymology has also received considerable scholarly attention. In particular, Seebold's *Vergleichendes und etymologisches Wörterbuch der germanischen starken Verben* (1970), containing etymological details for every reconstructable Germanic strong verb, is still considered *the* standard handbook. Moreover, there are numerous specialized studies on etymologies of individual verbs and also groups of verbs, all of which provide valuable insights into the etymological situation of the strong verbs. Several authors have pointed out that the strong verbs in par-

155. 'A considerable part of those verbs inflecting according to classes 1 and 2, and a large number of the verbs in classes 3, 4 and 5, judged by their etymological cognates and connections, are common Indo-European. This remains unaltered despite frequently noted differences regarding meaning and function, as well as formal deviances, e.g. in the stem formation of the present because these were caused by transpositions of the system in the long history stretching from Indo-European to the period of the Germanic daughter languages via dialectal stages.'

ticular contain a suspiciously high amount of non-Indo-European material, so for example Vennemann (1998a: 42):

In support of this speculative reconstruction [i.e. the proposition of language contact] let me remind you of an observation of which little has been made in the past. Quite a few of the Germanic strong verbs have no good Indo-European etymologies.

Similarly, Scardigli (1980: 385):

Ein interessantes Kapitel stellen die Wörter ohne sichere Vergleichsmöglichkeit dar. Es enthält manche bedeutende und konkrete Bezeichnungen für Pflanzen, Tiere, Körperteile. Viele wichtige Verben sind unter dieser Rubrik einzuordnen.¹⁵⁶

It is evident that these statements stand in contrast to the general opinion cited above. According to the majority of authors, the Germanic lexicon is peculiar but by no means *foreign* – an adjective which has been used for Greek and Hittite (cf. Tischler 1979: 267) – despite the apparent etymological and structural problems. This holds especially true for the strong verbs, which, being the primary verbs of Germanic, are seen as particularly resilient to external influence. In other words, the peculiarities that have been observed by experienced etymologists, culminating in the commonly accepted estimate of one third of non-Indo-European words in the Germanic lexicon, do not seem to have any effect on the postulate of the organic development from the parent language. This demonstrates the need for a quantitative analysis as a starting point for a scientific investigation.

Generally, the traditional type of etymological study uses the methods of internal and comparative reconstruction, described in the relevant literature. Moreover, there seems to be a certain degree of scepticism towards the assumption of external influence and the use of typological data. Notwithstanding the sensibility of this attitude, methodological precaution being one reason, in cases in which the accepted path of research has so far failed to provide any etymological connection whatsoever it seems justified to look for cognates elsewhere. The prevalent opinion generally considers non-etymologized lexemes as inherited until proven otherwise, since Germanic is an Indo-European language. But this methodologically necessary null hypothesis does not mean that non-Indo-European vocabulary cannot

156. 'The words without secure cognates make up an interesting chapter. This contains many an important and concrete term for plants, animals, body parts. Numerous important verbs are to be put in this category.'

be posited for Germanic at all. Likewise, the methodologically necessary requirement for a proposal based on language contact being the identification of the donor language and the circumstances of the contact, does not automatically restrict etymological research to Indo-European languages. Lastly, etymological data can rarely be obtained from typological data, however, language typology can clarify assumptions by telling us whether the development in question is found among the languages of the world, and whether it is unusual for the given language type. Consequently, it seems warranted to incorporate data from language contact theory and typology into etymological research even if not all variables are known, particularly if the etymological connection among the related languages seems unclear.

To sum up, from an etymological point of view (lexically and structurally), the strong verbs are commonly viewed as a peculiar feature of the Germanic language. However, they are also seen as being largely inherited from the parent language. As noted in chapter one, however, there are also scholars who wonder whether the genesis of the strong verbs was not to some degree influenced by other factors as well, and some, such as Stedje (1987), Vennemann (2000) and Mailhammer (2006), have outlined or advanced possible scenarios.

3. Quantitative approaches and the theoretical background

3.1. Quantitative approaches

The only recent comprehensive study connecting a quantitative analysis and etymology while at the same time involving Germanic is given by Bird (1993).¹⁵⁷ It lists the distribution of each Indo-European root according to

157. Theo Vennemann (Munich, p.c.) informs me that there is actually a quantitative investigation for the German lexicon, referred to by Hirt ([1921] 1968: 92–93). Liebig (1899: Appendix 2) provides a quantification of German roots with respect to their origin. One result is that 32.6 % of all German roots have cognates only in Germanic languages, i.e. they do not have an Indo-European etymology. Even though this does not tell us much about the Germanic lexicon and even less about the Germanic strong verbs, this figure may be kept in mind as a *tertium comparationis* for the investigation presented further below. Furthermore, as Theo Vennemann (Munich, p.c.) suspects, it may

Pokorny (1959) and Mann (1984–87), and then gives reference to the co-occurrences in any two branches. Consequently, it becomes visible how well entrenched a root is in the Indo-European daughter languages, and how many matches there are between two language groups. The total number of Indo-European roots in Pokorny's (1959) dictionary is 2044, whereas Mann (1984–87) counts 1273. Bird (1993: 5) points out that Pokorny's higher number is due to the fact that some roots "could be grouped under a single entry" and estimates the total number of Indo-European roots at approximately 1500, of which 1377, according to Pokorny (1959), and 1009, according to Mann (1984–87) are found in Germanic. In the opinion of Bird (1993: 5), this is the "largest number of entries" found, making Germanic the largest source of Indo-European roots. However, the proportion of cross-references with any other branch of Indo-European never reaches more than 60%, the highest co-occurrences being with Baltic (60%) and Greek (59%). According to Mann (1984–87), the figures are considerably higher, reaching 72% for the co-occurrence of Germanic with both Greek and Baltic. From Bird's (1993: 59–75) *Table 2* it can be seen that roots are very rarely reconstructed solely from Germanic and neighbouring languages (69 cases). At first glance it appears that Germanic – and not the Indic branch – renders the bulk of material for the reconstruction of Indo-European. If Indic and Iranian are combined, however, the total number of roots attested rises up to about 1700, significantly more than Germanic. Despite the high number of co-occurrences of Germanic forms, the data in Bird (1993) does not reveal anything about the quantitative etymological state of this language (or, in fact any other language), as the total number of Germanic words is, of course, unknown. As a matter of fact, this is not Bird's intention, his study is a "checklist for philologists" giving the state of attestation of a particular Indo-European root, including cross-referential data. As a result, there is no current quantitative data for the Germanic lexicon at all.¹⁵⁸ Neither the total number of lexemes, nor the proportion of inherited words is known, which makes the need for the present study even more obvious.

have provided the basis for the commonly assumed proportion of Germanic lexemes without Indo-European etymology, which is 33 %.

158. There are quantitative studies on a very small scale for Hittite and Greek (see Tischler 1979).

3.2. Theoretical and methodological background

3.2.1. *The quality of etymologies*

This study generally accepts the methods of reconstruction used in historical linguistics (see e.g. Birkhan 1985: 269–288 and Meier-Brügger 2000: 52–59). However, there are some principles in traditional approaches that necessitate a closer inspection. First, there is the predominance of the attested forms and the preference of comparative over internal reconstruction. It is certainly correct that every reconstruction can only start with an attested form, but this does not necessarily mean that if a form is not attested then it did not exist because this non-existence of attested forms may be due to a mere accident of history. As Meier-Brügger (2000: 53) points out, reconstruction is dependent on the attestations found in individual languages. Thus, he concludes that any reconstructive approach has its limitations, echoing Jerzy Kuryłowicz's well-known phrase “we cannot reconstruct *ad infinitum*”. This is fairly uncontroversial: however, it also seems logical that if a form is not attested it can nonetheless be posited, provided it is formally correct, and parallel cases make its existence reasonably plausible. This can be illustrated with the above-mentioned case involving the reconstruction of OE *cuman* and Goth. *qiman* in Bammesberger 1984. Since only thematic presents of two certain types are attested for the root IE ⁺*g^hem-* ‘come, arrive’, Bammesberger rejects the potential existence of other thematic types. By contrast, the situation of attestation and parallel cases, e.g. OI *tudáti*, make it plausible that a different type of thematic present could have existed. It is therefore possible to reconstruct and posit its existence for a language like Germanic. Thus, the predominance of attestation is a necessary precaution to prevent a “reconstruction *ad infinitum*” (and at will), but every case has to be judged individually.

Second, the precedence of formal criteria over semantic criteria found particularly in older etymological work is likewise a precaution because the rules of formal change are better explored, less vague to grasp, and simpler to apply. But it is obvious that just because semantic change and the meaning of a word in general may be a problem of categorization and definition this does not mean that semantics is irrelevant to reconstruction. Nevertheless, semantic reconstruction, the main subject of word history, did not receive much attention in earlier etymological research. As Panagl (1980: 317) put it, the historical relationship between semantics and etymology can be described as ‘disturbed’ (“gestört”). The reason, according

to Panagl (1980: 317f), is that semantic change seemed so arbitrary that many entirely inconceivable semantic changes were proposed, causing many etymologists to become sceptical of semantics. Nevertheless, already Panagl (1980) argued for the systematic incorporation of semantic arguments in reconstructive etymology because they constitute an important control mechanism for a proposed etymology.

Seebold (1980) examines another property of etymologies and reconstructions, and this is their quality, i.e. the probability of their correctness. Meier-Brügger (2000: 55) confirms this by pointing out a well-known fact, namely that reconstructions are generally prone to being challenged by a different interpretation of the data, alternative argumentation, and newly discovered data. The qualitative evaluation of an etymology contains two dimensions, an internal and an external one. Internal factors affect the inner logic of a reconstruction and the proposed connection to cognate words, whereas external factors concern the kind and the amount of data used. As Seebold (1980: 433) states, equations are the basis of every etymology. Consequently, etymologies can and have to be judged according to the proposed equations. As Seebold (1980: 436) emphasizes, this internal verification is vital for the correctness of any etymology, a point to which I shall return. From an external point of view, etymologies can only be judged in retrospect, i.e. first, if additional material is discovered, as in the case of Hittite, second, if new theories have been developed, such as the formulation of the laryngeal theory, or third, if the etymological proposition has neglected or omitted data without due reason.

Seebold (1980: 437–443) notes several criteria according to which equations are to be judged: As attestations form the basis of every equation, they play a particularly important role, as Seebold (1980: 438) notes: “Gut bezeugte Wörter ergeben gewichtigere Gleichungen als Hapax Legomena.”¹⁵⁹ This is clearly an important criterion. It further has to be pointed out that the number of languages cognates are attested in also seems to play a role in the quality of an etymology because fewer attestations in distantly related languages may carry more weight than numerous cognates in neighbouring languages. This point will be taken up again further below. Although it has to be applied with care, it is a general requirement that reconstructions should be based on the earliest form attested (Seebold 1980: 440), a point unanimously agreed upon (see e.g.; Birkhan 1985: 269; Meier-Brügger 2000: 52–55).

159. ‘Well attested words render better equations than hapax legomena’.

In addition to these fairly uncontroversial criteria, there is the purely linguistic quality of a proposed equation, i.e. whether it is formally and semantically probable, or whether it presupposes additional assumptions, which, according to Seebold (1980: 441), is a weakening element. In other words, if the equations that connect proposed cognates violate any applicable rules, reasons have to be found why this is the case. Even if these reasons are not *ad hoc*, there always remains some doubt, which makes the suggested equation less secure than one that is completely in line with the diachronic development. Furthermore, Seebold (1980: 442) argues that also a competing etymological proposal of comparative quality, i.e. an alternative suggestion, weakens a given etymology. This is directly based on the prerequisite that every proposed etymology has a certain probability of being correct, and that it consequently can be challenged on the various grounds just mentioned. If there are two plausible etymologies for one word, it is apparent that this does not strengthen any particular possibility, but rather weakens both, since they cannot be both right, but they may both be incorrect (Seebold 1980: 442). Based on these considerations, Seebold (1980: 443) outlines different grades of quality for etymologies and equations:

Als höchste Stufe einer guten Etymologie würden wir ansehen, daß in einer gemein-indogermanischen, gut bezeugten Sippe eine Gleichsetzung zwischen gut bezeugten Wörtern möglich ist, ohne daß eine ernsthaft konkurrierende Etymologie auftritt. ... Auf der nächsten Stufe verlangen wir die gleichen Merkmale, lassen aber morphologisch einwandfreie Anschlüsse zu, also Verbindungen von germanischen Ableitungen mit voreinzelsprachlichem Grundwort. ... Noch eine dritte Stufe, zu der wir Fälle zählen wollen, die zwar naheliegend sind, aber irgendwelche Schwierigkeiten aufweisen.¹⁶⁰

There are two additional factors involving the quality of an etymology, which follow from the high significance of the database noted in Seebold (1980: 441). First, it is clear that new discoveries, either new lexical material or structural correspondences can have a dramatic effect on existing etymologies, exemplified by the impact of the Hittite data in the 20th cen-

160. 'We would view a possible equation between well-attested words occurring in a well-attested, common Indo-European word family without seriously competing etymologies as the highest grade of an etymology. The next grade requires the same properties, but accepts morphologically flawless connections, i.e. correspondences of Germanic derivatives with bases in the parent language. A third grade, comprising all those cases that are suggestive but suffer from difficulties of some kind.'

ture. Therefore, a quantitative study in particular needs to be based on the latest data available. Second, another implication of Seebold's criteria is that the set of proposed cognates on which a suggested etymology is based is preferably not only taken from languages that are known to have been spoken directly adjacent to the one the etymon in question is taken from. The reason for this is obvious: If a word has only cognates in neighbouring languages this may be due to borrowing; the word itself may be ultimately a loanword from a further language and may therefore not necessarily reflect a genetic relation. Arguably, an etymology proposing an Indo-European origin for a word that is found only in neighbouring languages does not have to be *a priori* incorrect, but it is without doubt a weakening factor. Consequently, such an etymology cannot be viewed as being of the highest quality. Although older handbooks, such as Pokorny (1959), Seebold (1970) and Chantraine (1968–80), as a rule do not take this into account, more recent dictionaries, such as Mayrhofer (1986–) and Rix (2001), generally do not propose safe Indo-European etymologies if the cognates suggested for an etymon are only found in neighbouring languages. Rix (2001), for example, uses the question mark to indicate the uncertainty of the suggested etymology in such a case.

3.2.2. *Methodological considerations for a quantitative etymological analysis of the Germanic strong verbs*

There is one important methodological consequence following from the discussion in the previous section: Any quantitative evaluation of a corpus's etymological situation has to reflect the qualitative status of the etymologies proposed for the words in the corpus to some degree in order to avoid a distortion of the results. Since there are several grades conceivable (even more than the three grades sketched in Seebold 1980), a quantitative analysis operating with a binary system, e.g. *no etymology* vs. *accepted etymology*, is not fine enough to account for cases in which the etymological situation is more ambiguous. A binary categorization would then doubtless require a great deal of interpretation of the existing material, decreasing the level of objectivity. The ideal database for a quantitative etymological investigation should therefore contain specifications as to the quality of the etymology proposed. If this is not the case, linguistically sound rules of evaluation have to be set up. Factors involving the quality of an etymology have been discussed above, but it goes without saying that this is a highly complex undertaking. However, it has to be emphasized, a

point also made unambiguously clear by Seebold (1980: 449), that the qualitative categorization of etymologies has to be carried out mechanically and transparently according to a strict set of rules to guarantee a maximum of validity and objectivity.

That any serious quantitative study be based on already existing etymologies proposed by specialists in the field is required from a methodological as well as from a practical point of view. As every strong verb attested has already been investigated etymologically by Seebold (1970), any new proposals not only have to stand against the judgment made by its author but also against those made by other etymologists, and would consequently be even more vulnerable to criticism than the existing suggestions. In other words, newly proposed etymological databases for the quantitative interpretation have two weak points, first the etymologies themselves, and second their qualitative interpretation. By contrast, a quantification of widely accepted etymologies, applying a strict set of categories with respect to quality, may receive criticism with reference to one or the other detail, but it will hardly be rejected in total because the basis, i.e. the corpus of etymologies, has already found wide acceptance in the literature. This also means that one single database in which the author(s) have used a coherent methodological framework is to be preferred to many different studies and databases, because combining different databases represents an additional practical and methodological complication.

From this it follows that the choice of database is of primary significance for a quantitative study. The standard etymological database for the Germanic strong verbs is the *Vergleichendes und etymologisches Wörterbuch der germanischen starken Verben* by Elmar Seebold. It includes every Germanic strong verb reconstructable via the attestations in the daughter languages, providing etymological data from a vast range of sources. In addition, Seebold's notes on the etymological situation of each strong verb permit a fairly consistent qualitative categorization. If the origin of a particular verb cannot be ascertained beyond doubt, Seebold systematically uses recurrent phrases reflecting the quality of the etymological material available. Seebold typically employs the term "ungenauere Vergleichsmöglichkeit" ('inexact comparisons') to indicate that an etymon possesses only cognates that display formal and/or semantic problems, so that the etymology in question becomes less probable. The statement "unsichere Vergleichsmöglichkeit" ('uncertain comparisons') is used in cases in which there are serious formal and/or semantic difficulties attached to the suggested etymological relations. Lastly, "keine (brauchbare) Vergleichsmöglichkeit" ('no usable comparison') is employed by Seebold

(1970) to indicate that an etymon cannot be connected outside Germanic; it therefore has no etymology. However, despite the fact that, as the standard handbook on strong verb etymology, Seebold (1970), is both accepted and linguistically sound, more than 35 years have passed since its publication. Etymological research has not stopped, and several important etymologies have been advanced in the meantime, published in new etymological dictionaries and individual case studies. Without doubt, this has to have an influence on a quantitative investigation willing to fulfil the requirement of being based on contemporary knowledge. To rely only on non-current evaluations would be similar to using pre-laryngeal reconstructions, ignoring all advances since the advent of this theory; it would be methodological ignorance. This can be illustrated with a case in point, Gmc. ⁺*brema-*/⁺*bremma-* ‘roar’. According to Seebold (1970: 135) this doublet is probably connected to IE ⁺*b^hrem-* ‘(re-)sound’ (“gehört wahrscheinlich zu idg. *b^hrem-*“), having cognates in Latin, Celtic and Slavic besides a hypothetical connection to an Old Indic noun. It is obvious that this etymology is far from flawless. Seebold himself does not seem to be sure, and the most exact cognates are taken from neighbouring languages, which is doubtless a weakening element. However, Rix (2001: 94) lists cognates from Iranian, as well as a reconstruction of the Germanic verb’s stem formation, improving the quality of Seebold’s etymology considerably.

Another disadvantage of Seebold (1970) is the fact that he often omits the formal details involved in the etymologies given, such as stem formation and phonological developments, information which is provided by Rix (2001). Lastly, the fact that Indo-European etymologies are frequently proposed on the basis of cognates from neighbouring languages only (cf. 3.2.1 above) is a serious weakness of Seebold (1970). One example is Gmc. ⁺*graba-* ‘dig’, which, according to Seebold (1970: 236), goes back to a verbal base ⁺*ǵ^hreb^h-* ‘dig’, with Germanic showing the corresponding o-ablaut.¹⁶¹ However, the only cognates in support of this etymology are found in Baltic and Slavic, languages that were in contact with Germanic. Rix (2001: 201–202) is somewhat more hesitant to posit an Indo-European

161. Strictly speaking, Seebold (1970: 236) does not say that Gmc. ⁺*graba-* goes back to a verbal root in the parent language, and it is not entirely clear whether Seebold considers this etymon as etymologized. However, taking into account that Seebold usually unambiguously indicates non-etymologized verbs, it has to be concluded that Seebold (1970: 236) posits that Gmc. ⁺*graba-* has an Indo-European etymology based on the adduced cognates from Slavic and Baltic.

etymology for Gmc. ⁺*graba-*, pointing out that the root is only found in Germanic and Slavic, clearly marking the reconstruction of the Indo-European root as uncertain. To sum up, although Seebold (1970) is a highly useful database for this study, additional data has to be added to balance out specific problems.

In the area of Indo-European verbal etymology Rix (2001) certainly presents the most up-to-date and comprehensive collection of data. Nevertheless, for the purpose of this study the *Lexikon der indogermanischen Verben* on its own would be insufficient, as it is a dictionary of Indo-European primary verbal roots and their formations in the daughter languages, which consequently excludes originally denominal and deadjectival verbs. However, it has to be noted that, from a synchronic point of view, derived verbs in Indo-European may be treated as primary verbs in the individual daughter languages. For example, the strong verb Gmc. ⁺*salta-* ‘flavour, salt’, according to Kluge (2002, s.v. *Salz*) and the *OED* (sv. *salt*, v.¹) is a factitive derivation from the nominal base IE ⁺*səl-* ‘salt’, which is widely attested among the Indo-European languages. Nevertheless, synchronically, the Germanic verb has to be regarded as a primary formation because it does not contain any productive suffixes used to derive verbs from nouns, and also because it is a strong verb. Furthermore, the noun Gmc. ⁺*salta-* ‘salt’ is a derivative from the strong verb, which renders additional support to the view of Gmc. ⁺*salta-* as a primary verb. With the etymological facts in mind, it is not surprising that Rix (2001) lists neither Gmc. ⁺*salta-* nor a reconstructed verbal root for the parent language, although the Germanic etymon is clearly of Indo-European origin. Hence, in a quantitative analysis based only on Rix (2001) cases like Gmc. ⁺*salta-* are impossible to distinguish from Germanic verbs with no Indo-European etymology, as neither of them are found in Rix (2001). It is therefore apparent that the *Lexikon der indogermanischen Verben* as the only source of etymological data for the Germanic strong verbs would produce an incorrect result in this and similar cases, causing a considerable distortion and an unnatural polarization of the etymological situation.

In addition, there exists a recent etymological dictionary of Germanic, Orel (2003). However, in comparison with Rix (2001), Orel (2003) suffers from a serious disadvantage, which is that etymological literature after 1995 is not used at all. Moreover, the information is not especially rich in detail, and completely lacks specific details with regard to verbal stem formation and other formal properties, making a qualitative evaluation very difficult and prone to interpretational mistakes.

Beside these dictionaries, dealing either with Germanic or Indo-European, there are, of course, etymological dictionaries of the Germanic daughter languages, as well as numerous case studies examining individual strong verbs. However, according to the prerequisites formulated above, the fewer high-quality databases are used the better it is from a practical and methodological point of view. If the database for instance was formed on the basis of individual case studies and etymological dictionaries of Germanic daughter languages, one would effectively end up writing a new edition of Seebold's seminal work before any quantitative analysis could take place. Apart from the fact that this is impossible for reasons of practicality, it is not desirable from a methodological point of view, as already pointed out above.

From this discussion several conclusions for the proposed quantitative investigation can be drawn: First, the study has to incorporate as much recent information as possible. Second, as the degree of subjective interpretation of individual etymologies by the author of the quantitative study has to be minimized and also for reasons of feasibility, the number of adduced sources has to be kept as small as possible. Third, as no existing individual source is suitable, a way of combining the relevant etymological databases has to be found that guarantees a maximum of objectivity and transparency. Fourth, the mechanism of qualitative evaluation preferably is based on the verdicts by the authors of the etymological databases and not on those by the author of the quantitative study, in order to minimize the danger of subjective judgement. Fifth, the general methodological guidelines outlined in 3.3.1 above are to be observed.

3.2.3. *The methodological framework*

The methodological considerations presented in the previous sections have been incorporated in the present study in the following way: First, the database used is a combination of Seebold (1970) and Rix (2001). Orel (2003), etymological dictionaries of Germanic daughter languages (with the exception of Kluge 2002, see below), as well as specialized case studies that are not considered by Seebold (1970) and Rix (2001) are excluded. The main reason for excluding Orel (2003) is that, in addition to the methodological weaknesses pointed out in 3.3.2 above, it would present an unnecessary complication in the qualitative evaluation in relation to the significance of the information gained. The remaining etymological studies, i.e. etymological dictionaries of other Germanic daughter languages and

specialized case studies not included in Seebold (1970) and Rix (2001), are excluded for methodological and practical reasons. Both Seebold (1970) and Rix (2001) use a large number of sources for their etymological data, including most relevant etymological dictionaries and case studies, which keeps the risk of vital information not being incorporated at a reasonably low level. Moreover, the amount of subjective interpretation in the qualitative evaluation of an etymology rises with the number of different sources that are taken into consideration. If, for instance, a case study that has been considered neither by Seebold (1970) nor Rix (2001) suggests an alternative etymology, the author of the present analysis would have to decide on the plausibility of this proposal, which is methodologically unsafe. Furthermore, given the scope and time-frame of this study, it would have been impossible to collect and evaluate all the relevant data not included in the two standard handbooks, which, however, would be necessary in order not to distort the quantitative results. As one of the central aims of this study is to guarantee a maximum in objectivity while incorporating as much recent information as possible, the decision to base the analysis on Seebold (1970) and Rix (2001) is a necessary compromise. Finally, the database makes use of Kluge (2002) whenever possible, i.e. whenever the root of a Germanic strong verb is attested in German because it is closest to a current version of Seebold (1970), since Elmar Seebold is responsible for both works. However, Kluge (2002) is only used as a controlling element in conjunction with Seebold (1970), to verify whether Seebold himself still upholds his proposals made more than 30 years before the publication of Kluge (2002). It does not interfere with the qualitative evaluation explained below unless it becomes clear that the categorization in Seebold (1970) is outdated from Seebold's own point of view. This is facilitated by the fact that Kluge (2002) uses the same comments as Seebold (1970) to reflect the quality of an etymology (cf. 3.3.2 above). The exact mechanism of how the dictionaries forming the database are combined is explained below. In order to rank the quality of etymologies the following set of categories is proposed. It is based on the terminology in Seebold (1970), establishing four grades of etymological quality.

(14) Categorization of etymologies

Category A: This reflects the highest level of quality an etymology can have. Typically the etymon in question has a set of exact cognates in several related languages, and consequently it can be directly traced back to a root in the parent language.

Category B: This corresponds to Seebold's "keine genaue Vergleichsmöglichkeit" ('no exact comparison'). Rix (2001) indicates an inexact correspondence in the entry's footnotes. Generally, this category includes etymologies that suffer from formal and/or semantic weaknesses; the connection to a root in the parent language is only possible by making additional assumptions, which is a weakening element (cf. 3.3.1 above). Nevertheless, the etymon can be considered reasonably well-entrenched in the parent language.

Category C: This category comprises etymologies that display serious formal and/or semantic problems, and can therefore not be posited with certainty, which is also reflected in Seebold's evaluation "keine sichere Vergleichsmöglichkeit" ('no secure comparison'), as well as by the question mark in Rix (2001).

Category D: The etyma in this category have no correspondences in related languages, and consequently cannot be traced back to Indo-European roots. Seebold (1970) typically writes "keine (brauchbare) Vergleichsmöglichkeit" ('no (usable) comparison'). Rix (2001) generally indicates that the etymon in question is only found in Germanic, or it is not listed at all.

The etymology of a Germanic strong verb is placed into the qualitative categories in (14) according to the following mechanism: First the base category is determined following Seebold (1970), because the evaluation given there directly reflects the classification set up above, and because it is the most fundamental and comprehensive study on strong verb etymology. Second, if the verb or a related form is included in Kluge (2002), this basic categorization is verified in order to ensure that the ranking in Seebold (1970) is still valid, which is true in the overwhelming majority of cases. Third, in order to account for the advances in etymological research, and because it is the standard handbook from the Indo-European perspective, Rix (2001) then can modify the base category by one degree up or down, depending on the ranking that can be inferred from the data provided (see 14 above). Downgrading reflects the fact that a proposed etymology is weakened by a different but equally plausible suggestion, as argued in 3.3.1 above. Upgrading takes place if an etymological connection proposed by Seebold (1970) is supported by additional material provided by Rix (2001). Fourth, a further modification in addition to the first occurs if a verb's etymology is based only on cognates from languages that were spoken directly adjacent to Germanic (see e.g. Mallory 1997). As argued above, this is due to the fact that cognates from neighbouring languages

cannot rule out the possibility of a circular etymology, resulting in the weakening of an etymology. To account for the extra amount of uncertainty, the etymology is downgraded by one category.¹⁶² This means that Seebold's (1970) etymological categorization can be downgraded by a maximum of two degrees, and upgraded by one degree (see Appendix B for information on all modified etymologies). Although downgrading by two degrees may seem drastic, since a word that seems to have a good Indo-European etymology according to Seebold (1970) can end up in Category C (no secure etymology), this is likely to be an adequate representation of the facts. In the assumed case the particular etymon would typically be absent from Rix (2001) – ruling out cases like Gmc. ⁺*salta-*, mentioned above – and then the etymology in Seebold (1970) would be based on neighbouring languages only. It seems unlikely that a strong verb with good Indo-European relations should not be included in the most up-to-date work on Indo-European verbal etymology at all, which has to be seen as a major weakness. The effect of the neighbouring language factor has already been discussed. Thus, the categorization by Seebold (1970) for the hypothetical case discussed here is likely to be incorrect, which has to have an effect on the qualitative categorization. Nevertheless, as can be seen from the information given in Appendix B, these more extreme cases are comparatively rare (see also 3.3.4 for sample categorizations).

The qualitative evaluation presented here is a compromise, motivated by the considerations presented in 3.3.1 and 3.3.2.¹⁶³ It has to be emphasized that the goal of this analysis is neither to verify existing etymologies nor to propose new ones but to quantify the etymological situation of the Germanic strong verbs as exactly and objectively as possible. To this end, however, the existing etymologies have to be evaluated qualitatively and independently to avoid a distortion of the results and a purely subjective interpretation. As argued in 3.3.1, however, a binary classification is insufficient because the result is likely to be extremely polarized, since the data

162. This step obviously does not apply in cases in which the downgrading in step three, i.e. by Rix (2001), is already due to the fact that a Germanic strong verb only possesses cognates in neighbouring languages. For instance, a verb like Gmc. ⁺*graba-* 'dig' is downgraded by one degree to account for the question mark in the entry in Rix (2001). However, as this uncertainty expressed by Rix (2001) is due to the fact that the adduced cognates are only from neighbouring languages, there is no further downgrading.

163. See Appendix C for quantitative analyses based on alternative qualitative evaluations underlining the validity of the mechanism used in this study.

often provides only inconclusive clues to the position of an etymological connection. Therefore, the process used here operates with two additional categories (B and C), which act as a buffer zone, rendering a more precise account of the etymological situation. Nevertheless, despite the need for a strictly mechanical application of the system of categorization, designed to guarantee a maximum of validity and transparency, it is clear that the material and the etymologies themselves are examined carefully in every case to minimize potential misinterpretations. This seems particularly necessary, as the evaluations by Seebold (1970) occasionally seem to have been formulated erroneously: If Seebold (1970), for instance, does not present any cognates for an etymon, not even a hypothetical connection, the verdict “keine genaue Vergleichsmöglichkeit” (‘no exact comparison’) is clearly inaccurate and has to be amended. This can be exemplified with Gmc. ⁺*drēda-* ‘fear’, for which there is no exact correspondence (“keine genaue Vergleichsmöglichkeit”), according to Seebold (1970: 162). However, Seebold (1970) does not suggest any putative cognates for this verb. Consequently, “keine genaue Vergleichsmöglichkeit” in this case does not mean ‘no exact comparisons’, but rather ‘no etymology’. This is confirmed by Rix (2001), which lists neither the verb nor any derivatives. As a result, Gmc. ⁺*drēda-* has to be placed in Category D, as Seebold’s comment obviously does not adequately reflect the etymological situation.

To sum up, before the quantitative analysis, each strong verb is placed into one out of four categories, reflecting the quality of the proposed etymologies. This categorization is carried out strictly according to a transparent mechanism aimed at maximizing objectivity and validity using a comprehensive and current database. The following section serves to illustrate this process.

3.2.4. Sample categorizations

This section provides some examples of how the mechanism of qualitative evaluation proposed in the previous section is applied. A complete list of the etymological categorization of the Germanic strong verbs can be found in Appendix B, including information on the modification procedures. As explained above, Kluge (2002) is only referred to if it diverges from Seebold (1970).

- (15) BERA- ‘carry, bear’ (Seebold 1970: 104–106): Category A
This pan-Germanic verb is a prototype of an inherited etymon. There is an abundance of cognates among the related languages, of which e.g. OI *bhárati* ‘carries’ is an exact formal and semantic match in a non-adjacent language. However, not only is the verb found in Latin, Old Church Slavonic, Old Irish and, possibly, Lithuanian, but more importantly, also in Ancient Greek, and Tocharian A and B. Therefore, it is not surprising that Seebold (1970: 106) concludes that Gmc. **bera-* goes back to an Indo-European root with definite certainty, a fact that is confirmed by Rix (2001). Thus, according to the mechanism of categorization used in this study, Gmc. **bera-* is placed in category A.
- (16) FARA- ‘go, fare’ (Seebold 1970: 187–188): Category A
Attested in every Germanic language, Gmc. **fara-* has to be reconstructed as Pre-Gmc. **por-*, which Seebold (1970: 188) views as a likely ablaut variant of the root IE **per-* ‘go through, cross’, suggesting OI *píparti* ‘carries across, saves, protects, surpasses’ and Gk. *πορεύω* ‘let go, carry, lead’ as cognates, to note just the most significant ones. However, Seebold (1970) is unable to directly relate the Germanic etymon and the Indo-European root morphologically, and thus is only able to give a probable Indo-European etymology (“wahrscheinlich”), equalling Category B. However, Rix (2001: 472) convincingly argues that Gmc. **fara-* is a reduplicated present belonging to the root IE **per-* ‘go through, cross’. Consequently, this verb is upgraded from Category B to A, as the additional data provided by Rix (2001) improves the proposal made by Seebold (1970).¹⁶⁴
- (17) BEUGA- ‘bend’ (Seebold 1970: 110–111): Category B
This verb is attested in virtually every branch of the Germanic languages, either with a diphthongal root (Gothic, Old High German), or as the *ū*-variant (Old Norse, Old English, Old Saxon). Seebold

164. Werner Winter (Kiel, p.c.) points out that “it is by no means certain that the semantic bridge between **durchdringen* [penetrate] > *durchbohren* [pierce]’ and Goth. *faran* ‘travel’ is sound enough.” Though this is doubtless correct, for reasons given in the previous section the categorization mechanism does neither permit an interpretation of the data given by the dictionaries used in this study, nor the inclusion of additional literature.

(1970: 111) places it in category B (“keine genaue Vergleichsmöglichkeit”) because the only potential candidates point to a non-aspirated root-final consonant, i.e. IE $^{+}b^{h}eu\hat{g}$ -, whereas the Germanic etymon requires $^{+}b^{h}eug^{h}$ -. Rix (2001: 85) assumes final aspiration (“mit Aspiration des Auslauts”) as a special rule for the Germanic form, which is *ad hoc*, and besides does not alter the fact that the available cognates match the Germanic form only inexactly. Gmc. $^{+}beuga$ - is therefore placed in Category B.

- (18) SKEINA- ‘shine’ (Seebold 1970: 409–410): Category B
According to Seebold (1970: 410) Gmc. $^{+}skeina$ - is an original nasal present, with attestations in all Germanic languages and a secure cognate in OCS *sijajq*, -*ati* ‘shine, beam’, alongside CS *sinqti* ‘light up’ (nasal present). In addition, Seebold mentions L *scintilla* ‘spark’ and the fact that some dictionaries also suggest doubtful connections with some eastern words denoting ‘shadow’, e.g. OI *chaya*-. Thus, the only exact cognate is attested in Old Church Slavonic/Church Slavonic¹⁶⁵. Kluge (2002, s.v. *scheinen*) does not include the putative cognate from Old Indic mentioned in Seebold (1970: 419), which underlines the doubts already expressed there. It is stated by Rix (2001: 546) that the verb is found only in Germanic and Serbo-Croatian. As a result this verb is downgraded from Category A to Category B, as the etymology is based only on correspondences in a neighbouring language
- (19) WERSA- ‘to confuse’ (Seebold 1970: 559): Category B
This verb is only attested in Old Saxon and Old High German. According to Seebold (1970: 599), it has “keine sichere Vergleichsmöglichkeit” (‘no secure comparison’), i.e. Category C. Kluge (2002, s.v. *Wurst*) posits an Indo-European root $^{+}wers$ - without supplying any attested forms, i.e. *ad hoc*. However, Rix (2001: 690) provides cognates from Old Church Slavonic and Hittite, which could well point to an Indo-European origin. Consequently, Gmc. $^{+}wersa$ - is upgraded by one degree from Category C to B, as Rix (2001) adduces additional support for the suggestion made by Seebold (1970: 559).

165. *Church Slavonic* is used as a cover term for an extension of the Old Church Slavonic vocabulary by Seebold (1970).

- (20) SEHWA- ‘see’ (Seebold 1970: 387–388): Category C
According to Seebold (1970: 388), this pan-Germanic verb has no secure IE cognates (“keine sichere Vergleichsmöglichkeit”), as all the semantic matches adduced suffer from grave formal problems. Rix (2001: 525) also questions the traditional connection with IE ⁺*sekʰ-*. As a result Gmc. ⁺*sehwa-* is placed into Category C.
- (23) TAKA- ‘take’ (Seebold 1970: 498–499): Category C
Well attested only in Old Norse and later in English, Gmc. ⁺*taka-* has no exact correspondences beyond Germanic (“außergermanisch gibt es keine genaue Vergleichsmöglichkeit“, Seebold 1970: 499), i.e. Category B. However, the verb is absent from Rix (2001), and therefore has to be placed in Category C rather than B.
- (24) LEIÐA- ‘leave, suffer’ (Seebold 1970: 328–330): Category C
According to the attestations found in all Germanic dialects, the primary meaning is likely to have been ‘leave’. Seebold (1970: 329) concludes that there is no “brauchbare Vergleichsmöglichkeit” (‘no usable comparison’), i.e. Category D. By contrast, Rix (2001: 410) proposes a connection to IE ⁺*lejt-* ‘leave’, referring to recent literature. Consequently, this verb has to be upgraded from Category D to Category C, as the evaluation by Seebold (1970) is based on insufficient data.
- (25) SKEUBA- ‘shove, push’ (Seebold 1970: 416–417): Category D
This verb is attested in all older Germanic languages. However, Old English and Old Saxon only have the *ū*-variant. Seebold (1970: 417) does not offer any etymological connection (“hat keine überzeugende Vergleichsmöglichkeit”). Moreover, Rix (2001: 560), lists only potential cognates from Baltic and Slavic, which does not render a solid etymology anyway, indicated by the question mark. Consequently, Gmc. ⁺*skeuba-* has no Indo-European etymology (Category D).

However, without influencing this categorization, it has to be noted that the reconstruction of the root presented by Rix (2001) is highly problematic anyway. This is because G *Schaufel* (E *shovel*)

has to be considered related¹⁶⁶, but it clearly points to a root-final ^+p in the Indo-European parent-language. In addition, the $\bar{u}$ -forms indicate an original zero grade present. Hence, the Pre-Germanic root has to be set up as $^+skeup-$, with the effect of Verner's Law accounting for the forms with Gmc. ^+b . Hence, the starting point is a zero grade present Pre-Gmc. $^+skup-$, which was later regularized to Gmc. $^+skeuba-/^+skūba-$. For G *Schaufel* an accented root has to be assumed to explain at the root-final f , but this is unproblematic.

Unfortunately, neither Seebold (1970) nor Rix (2001: 560) realize all this, and thus the reconstruction in the *LIV* in which cognates in Baltic and Slavic are posited cannot be formally correct as they operate with IE $^+b^h$ rather than ^+p . Jarosch (1995–, s.v. SKEUB-A-) acknowledges the connection between G *schieben* and *Schaufel* as well as the reconstructive implications, but does not offer an alternative solution regarding the Germanic verb's etymology. Neither Pokorny (1959) nor Rix (2001) include an Indo-European root corresponding formally and semantically to what has to be assumed from a Germanic point of view.¹⁶⁷

166. Kluge (2002, s.v. *Schaufel*) explains G *Schaufel* 'shovel' as "Instrumentalbildung" belonging to Gmc. $^+skeuba-$, without addressing the root-final consonant. Seebold (1970: 416–417) does not mention the noun. The OED (s.v. *shove*, v.¹) points out the facts correctly without offering any further connections: "As there are traces of a variant with f instead of $\bar{b}$ (see *SHOVEL*, n.), the pre-Teut. form is prob. $^+skeup-$."

An additional complication is introduced by OHG *fer-scupfende* 'fleeing' which, according to Seebold (1970: 417) belongs to this root showing intensive gemination, as well as G *Schippe* 'shovel, spade' (a word of unknown formation connected to G *Schaufel/schieben*, see Kluge 2002, s.v. *Schippe*). However, first of all the notion of intensive gemination is rather vague. Despite the hypothesis advanced by Lühr (1988), this area does not seem to have been researched well enough to be used for etymological reconstructions. Additionally, 'fleeing' does not necessarily have a connection to 'push, shove', which may indicate that this Old High German etymon does not belong to Gmc. $^+skeuba-$ after all.

167. Theo Vennemann (Munich, p.c.) draws my attention to L *caupō* 'bartender, merchant', Gmc. $^+kaupō-$ 'buy, do business' and Goth. *kaupaþjan* 'give s.o. a smack', which may be connected if s -mobile is assumed. However, this would have to be investigated, as the semantic relation to Gmc. $^+skeuba-$ is not straightforward.

- (25) SNERPA- ‘shrink’ (Seebold 1970: 445): Category D
The only older Germanic language in which this verb is attested is Old High German; Seebold (1970: 445): “Keine unmittelbare Vergleichsmöglichkeit” (‘no direct comparison’), i.e. Category D. This is confirmed by Rix (2001), who does not list this verb. Consequently, the sources agree that Gmc. ⁺*snerpa-*, which is part of the SCG-group mentioned in chapter two, has no Indo-European etymology. This is reflected by the classification as Category D.
- (26) WREIPA- ‘wind’ (Seebold 1970: 567–568): Category D
For this verb, which is attested in Old Norse, Old English and Old High German, Seebold (1970: 568) offers only an uncertain correspondence (“unsichere Vergleichsmöglichkeit”) to Lith. *riečiù, riēsti* ‘bend, roll up’. The verdict in Seebold 1970 is confirmed by Rix (2001: 700), and the entire root is marked as uncertain. Consequently, as the only potential cognate is from an adjacent language, Gmc. ⁺*wreipa-* is downgraded to Category D.
- (27) NEIPA- ‘darken’ (Seebold 1970: 356): Category D
Gmc. ⁺*neipa-*, attested as a verb only in Old English, has, according to Seebold (1970: 356), inexact correspondences in Lith. *nīaukiu, -ti* ‘become covered, overcast, darken’, possibly also L *nimbus* ‘rain cloud’ and *nūbes* ‘cloud’, i.e. Category B. However, the Germanic verb is not listed by Rix (2001) at all. Consequently, downgrading by one degree takes place, i.e. Category C. The fact that the etymology in Seebold (1970) rests only on cognates from neighbouring languages is a further weakness, causing downgrading by another degree to Category D. Thus Gmc. ⁺*neipa-* does not have an Indo-European etymology by the standards required in this study. Note that future research may be able to significantly improve this categorization. This is demonstrated in section 3 of chapter four, where a recent approach for a hitherto non-etymologized strong verb, Gmc. ⁺*laha-* ‘reprimand’, is discussed, which opens up new etymological connections within the Indo-European language family.

As demonstrated by this list of examples, the categorization takes place according to the strict mechanism described in (14) above, a methodical requirement stressed by Seebold (1980). It has to be emphasized again that this analysis is a quantification of the data provided by the dictionaries

specified in the previous section. Neither does it claim to incorporate all of the available material in its entirety, mainly for reasons of practicality, nor is its aim to re-etymologize any of the material. Consequently, in singular cases the categorization may be imprecise, but in the large majority of cases it certainly reflects the actual etymological situation according to current knowledge, thus providing a quantitative etymological picture of the Germanic strong verbs.

With the method of qualitative categorization sufficiently established and illustrated, the next step is the quantitative analysis of the data, which will be the topic of the next section. However, because there may be disagreement with the parameters determining the qualitative categorization of etymologies and also to demonstrate that these do not significantly influence the result, Appendix C contains alternative analyses according to different criteria, which may be compared with those presented in the main part of the present study. Nevertheless, it has to be emphasized that this does not relativize the validity of the categorization developed in the previous section.

4. Quantitative analysis of the etymological data

4.1. Database

The total number of Germanic strong verbs included in Seebold (1970) is 628. However, for various reasons this cannot be considered a reliable database. First, there are a number of verbs that are only sparsely attested, and therefore either Seebold (1970) only lists them without any etymological suggestion, or it becomes clear from the entry itself that this verb is not attested well enough to secure its existence as a strong verb. This is exemplified by Gmc. **geupa-* ‘absorb’, for which the entry in Seebold (1970: 227) says “der Beleg [ist] zu spärlich für den Ansatz eines st.V.”¹⁶⁸. It is apparent that the inclusion of these cases would have distorted the overall results drastically, which is the reason for their exclusion. Second, there are cases in which the strong inflection is secondary. Thus, it cannot be ascertained that the verb in question exhibited a strong inflection in the Germanic period. An example of this is Gmc. **peipa-* ‘whistle’, not attested until MHG *phîfen* ‘whistle’, for which Seebold (1970: 363) notes

168. ‘The attestation is too meagre for positing a strong verb’.

that it is generally taken as a borrowing from ML *pīpāre*. Alternatively, Kluge (2002, s.v. *pfeifen*) considers an onomatopoetic origin, as opposed to the *OED* (s.v. *pipe*, v.¹, n.¹), which clearly favours the loan etymology from Latin. Hence, a strong inflection cannot be assumed with sufficient certainty for Germanic, and thus the verb is excluded from the corpus. Third, all variants of one and the same verb, such as *eu*-verb next to *ū*-verb in class II, e.g. ⁺*beuga*- ‘bend’ and ⁺*būga*- ‘bend’, form one entry together, i.e. the verb is only counted once to avoid a distortion of the results.

The number of the excluded verbs is 136 in total (cf. the list in Appendix B). Consequently, 492 strong verbs remain, forming the corpus of the quantitative investigation. The categorization of the data was carried out in accordance with the considerations and requirements discussed in the previous section (see 14 above). For the sake of transparency and also to provide a reference database, Appendix B contains a list of all strong verbs and their categorization.

4.2. The etymological situation of the Germanic strong verbs: Results

4.2.1. Overall results for the complete corpus

Of the total number of 492 analysed verbs, 98 (19.9%) can be traced back to the parent language with definite certainty, i.e. they belong to Category A. A further 72 verbs (14.6%) have inexact correspondences among the related languages, and consequently are placed in Category B. Both groups together, representing etyma for which an Indo-European origin is either considered certain by Seebold (1970) and Rix (2001) or at least probable, number a total of 169 verbs (34.5%). Verbs of category C, which have only uncertain Indo-European cognates represent 20.1% of the corpus (99 verbs). Category D (verbs with no etymology) forms the largest group, accounting for 45.3% or 223 verbs. Consequently, the proportion of Germanic strong verbs that possess either uncertain etymological relations or none at all is 65.4%, representing almost two thirds of the corpus (see *Figure 1*).

4.2.2. Class I

With a total of 96 verbs this class is the second largest in the corpus (19.5% of all strong verbs belong to class I). 16 of these (16.7%) have clear

Indo-European etymologies (Category A). Categories B (inexact correspondences) and C (doubtful correspondences) are nearly equal in size, accounting for 15.6% (15 verbs) and 13.5% (13 verbs) respectively. Verbs of Category D (no Indo-European etymology) make up 54.2% (54 verbs) of class I (see *Figure 2*)

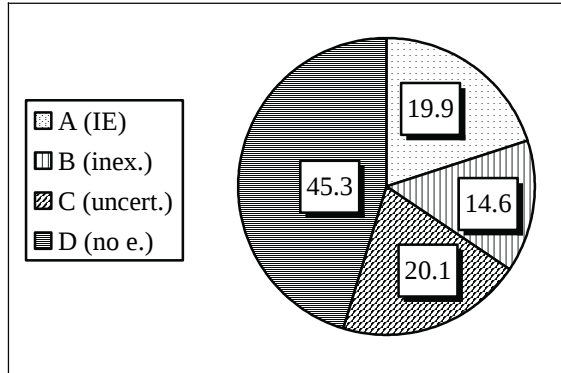


Figure 1. Overall results

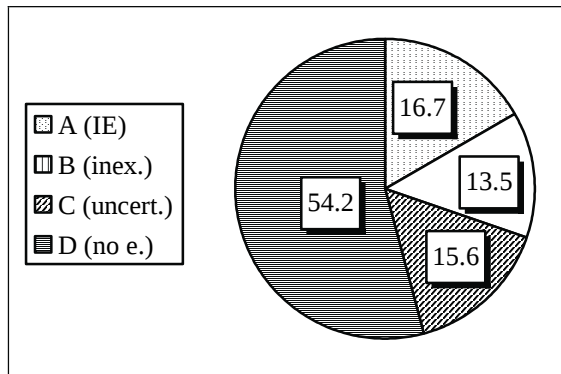


Figure 2. Class I

4.2.3. Class II

Comprising 78 verbs, this class contains 15.9% of all strong verbs, which makes it the third largest ablaut class. Categories A (12 verbs, 15.4%) and B (15.4%, 12 verbs) together account for 30.8% of the total number of verbs in class II. Category C is of the same size as B (14 verbs or 17.9%)

whereas Category D, comprising those verbs without an Indo-European etymology, accounts for 51.3% (40 verbs) of all class II verbs. Thus, by and large, the picture in class II is not very different from that in class I (cf. *Figure 3*). It has to be noted that the *ū*-verbs have particularly weak Indo-European correspondences, only Gmc. **slūka-* possesses a secure Indo-European etymology (Category A).

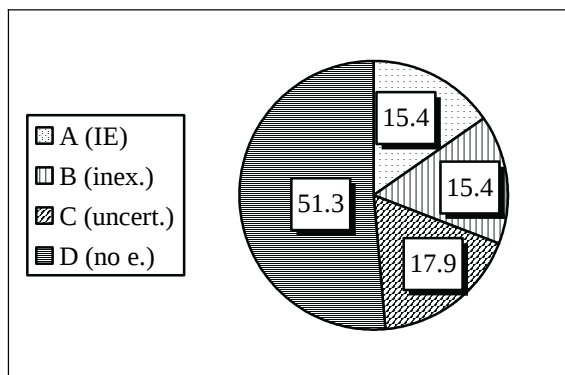


Figure 3. Class II

4.2.4. Class III

As noted in chapter two (2.1.5), this class is particularly heterogeneous from the viewpoint of diachronic morphology. Synchronically, however, class III is one of the most homogeneous, with only two obvious zero grade presents, **murna-* and **spurna-*, which, as nasal presents, display regular zero grade. It is noteworthy that this is by far the largest ablaut class, numbering 135 lexemes or 27.4% of all strong verbs. This means that 309 of all strong verbs belong to one of the first three classes equalling 62.8%.

Another characteristic class III shares with classes I and II is the comparatively high percentage of words without an Indo-European etymology (Category D), which is 54.8% (74 verbs). However, in class III Category C is significantly larger than in the two classes just mentioned, comprising 33 verbs (24.4%). Category B includes only nine verbs (6.7%) and Category A (secure Indo-European origin) 19 verbs accounting for 14.1% (see *Figure 4*). Note also that verbs belonging to the SCG group mentioned in chapter two generally do not have good Indo-European etymologies; the details can be obtained from Appendix B. This is all the more noteworthy

as this group is characterized by structural similarities paralleled by semantic correspondences. From a semantic point of view, the fact that there are several verbs expressing the meanings 'sneak, creep, glide' seems peculiar, as it cannot be argued that denotations of this kind are commonly expressed by a variety of lexical items.

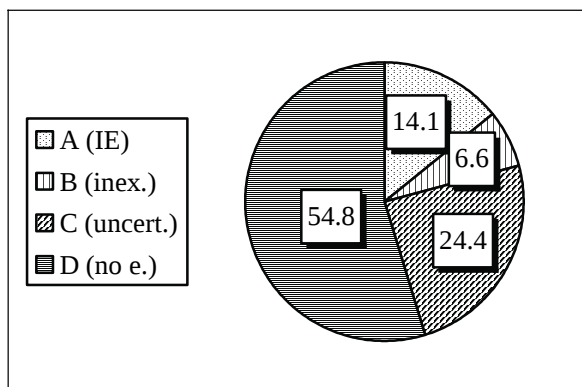


Figure 4. Class III

4.2.5. Class IV

Comprising only 19 verbs (3.9% of the total corpus), this is clearly the smallest ablaut class. In contrast to the first three classes, the etymological situation in class IV is characterized by a high proportion of Indo-European lexemes (Category A): eight verbs or 42.1 %. A further 26.3% or five verbs possess only inexact connections among the related languages (Category B), only four (21.1%) and another two (10.5%) belong to Categories C and D respectively (see *Figure 5*).

4.2.6. Class V

The total number of verbs in this class is 45 or 9.1% of all strong verbs, nearly three times the size of class IV. Lexemes with accepted Indo-European etymologies account for 37.0% (17 verbs) of the total number of verbs in this class, with a further seven lexemes (15.2%) having only inexact correspondences among the related languages (Category B). There are ten verbs (21.7%) in Category C and twelve verbs (26.1%) have no Indo-

European etymology (Category D). The result for class V is illustrated in *Figure 6*. It clearly show that more than half of the verbs in this class possess at least an inexact connection within the Indo-European language family, which is among the highest proportion among the Germanic strong verbs.

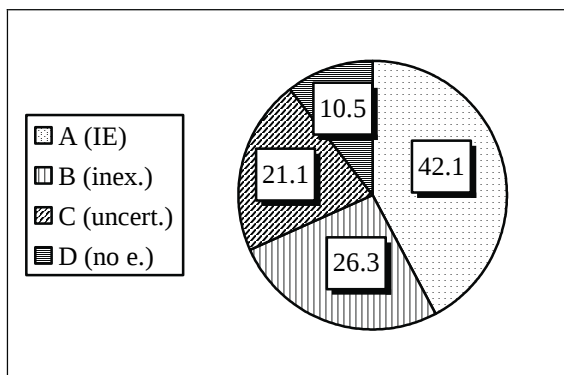


Figure 5. Class IV

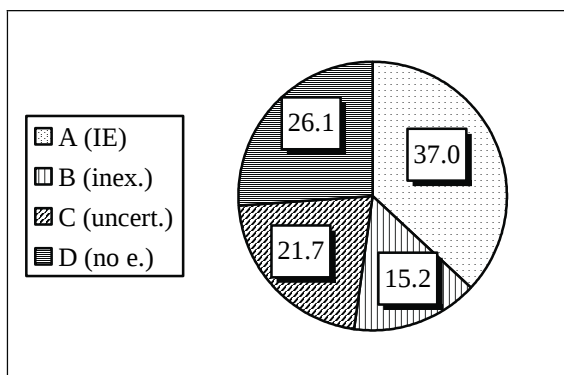


Figure 6. Class V

4.2.7. Class VI

The total number of verbs in this class is identical to that of class V: 46 (9.4% of the corpus) meaning that only class IV is smaller. However, the etymological situation is clearly different: Categories C (11 verbs, 23.9%) and D (16 verbs, 34.8%) combined number 27 verbs, and thus account for

58.7% of all lexemes in this class. By contrast, verbs with an accepted Indo-European etymology number only 19 (Category A: 9 verbs or 19.6%, Category B: 10/21.7%), which represents 41.3%. The high amount of verbs with uncertain etymologies can probably be attributed to the morphological situation: Several verbs may well originally be derived verbs, but as in many cases their derivational bases are not attested in Germanic, it is impossible to prove this point beyond doubt. As a consequence, the particular etymologies can only be viewed as uncertain. The results are displayed in *Figure 7*.

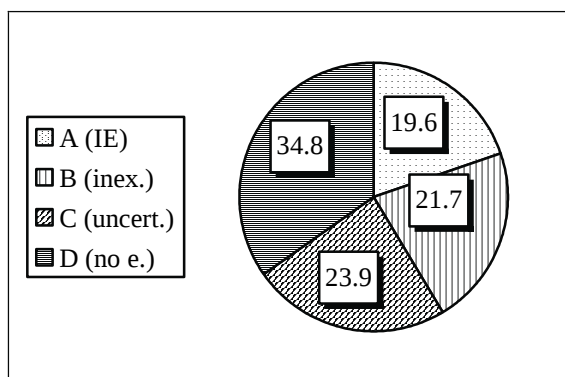


Figure 7. Class VI

4.2.8. Reduplicating verbs

The reduplicating verbs are a medium-sized group (73 verbs) accounting for 14.8% of all strong verbs. 18 lexemes (24.7%) have an accepted Indo-European etymology and in a further 16 cases (21.9%) the correspondences are inexact (Category B). Category C contains twelve verbs (16.4%), and the percentage for verbs without an Indo-European etymology is 37.0% (27 verbs). Thus, a similar result to that in class V is obtained (see *Figure 8*). The proportion of reduplicating verbs with a clear Indo-European etymology is comparably high. This may have to do with the fact that the root structure of the reduplicating verbs is far less regulated than that of the ablauting verbs, i.e. classes I to VI. However, it cannot go unnoticed that a sizeable number of reduplicating verbs – clearly more than one third – do not possess an Indo-European etymology. This is all the more peculiar since the reduplicating verbs seem to preserve a functionally essential fea-

ture of the inherited perfect that is insignificant within the Germanic verb system, namely reduplication. The preterit of the reduplicating-ablauting verbs in particular conserves the Indo-European perfect type almost without alteration (if the loss of paradigmatic ablaut in the preterit is disregarded for the moment, cf. section 3.3 of chapter two).

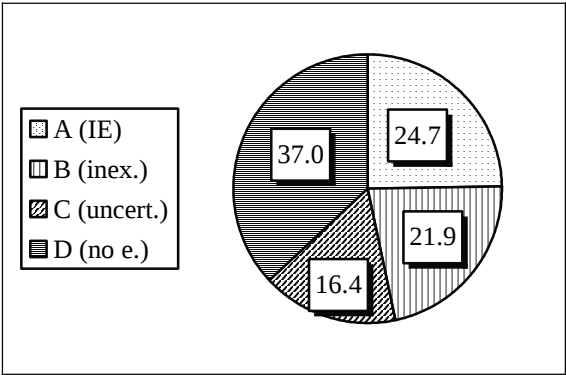


Figure 8. Reduplicating verbs

4.2.9. Discussion and evaluation

The results of the quantitative investigation are repeated below for the reader’s convenience:

Table 4. Results according to classes and overall results

Class	Category A	Category B	Category C	Category D
I	16.7% (16)	13.5% (13)	15.6% (15)	54.2% (54)
II	15.4% (12)	15.4% (12)	17.9% (14)	51.3% (40)
III	14.1% (19)	6.7% (9)	24.4% (33)	54.8% (74)
IV	42.1% (8)	26.3% (5)	21.1% (4)	10.5% (2)
V	37.0% (17)	15.2% (7)	21.7% (10)	26.1% (12)
VI	19.6% (9)	21.7% (10)	23.9% (11)	34.8% (16)
red. verbs	24.7% (18)	21.9% (16)	16.4% (12)	37.0% (27)
overall result	19.9% (98)	14.6% (72)	20.1% (99)	45.3% (223)

From these results it becomes apparent that the Germanic strong verbs are certainly less well entrenched in the parent language than commonly assumed. Only about a third of them possess an etymology of the highest or second-highest quality, representing exact and inexact correspondences in related languages. However, almost two thirds possess either uncertain etymological connections among the Indo-European languages or no etymology at all. In particular, the high number of verbs without an Indo-European etymology is noteworthy, amounting to nearly half the total number of the corpus.

Note that although this does not necessarily mean that all of the non-etymologized vocabulary is made up of non-Indo-European loanwords – as their origin simply has not been ascertained – this result has to be considered peculiar. Regardless of the etymological connections of the problematic strong verbs that may be discovered by future research, the surprisingly high proportion of Germanic strong verbs without an Indo-European etymology, clearly surpassing the figures for the complete lexicon found in the literature, casts doubts on the general opinion, which considers the majority of the strong verbs inherited from the parent language. Assuming that a non-Indo-European origin of a substantial number of strong verbs could be proven, this would have serious implications for the genesis of the Germanic language. This is because according to language contact theory, the verbal part of the lexicon, especially the basic or core verbs (to which the majority of the strong verbs doubtless belongs), tends to be more resilient to external influence than the nominal part, which in turn would suggest an even higher percentage of potential loanwords in this area. Moreover, this would also indicate that a putative contact situation would have to have been comparably intense, since this is usually seen as one of the requirements for the transfer of core vocabulary from one language to another. As e.g. Thomason and Kaufman (1988: 48) in their seminal handbook on language contact explicitly state: “In a comparably intense borrowing situation, whole subsystems or even the entire grammar may be borrowed along with large numbers of words.”

However, this illustrates another triviality of contact linguistics, which is that core vocabulary is by no means immune to external influence. This can easily be demonstrated with examples taken from the history of English. The dominance of French-speaking Normans in medieval England resulted in the replacement of numerous native primary verbs, nouns and adjectives by French loans, not only in the traditional superstrate vocabulary of government, military and so forth but also among words from everyday life. Examples are OE *hātan* ‘command’, OE *fōn* ‘catch, seize’, *lyft*

‘air’, *fierd* ‘army’, *lēode* ‘people’, *æpele* ‘noble’, whose translations into Modern English are enough to prove the point (see Lutz 2002a, b; Vennemann 2004c for linguistic analyses of the contact situation).

Moreover, the term *primary verb* means that, synchronically, a particular verb is not derived from another basis in the lexicon. However, if two thirds of the strong verbs really turned out to be loanwords, then, of course they would look like primary verbs, since the language would not necessarily have borrowed the derivational bases as well, at least not in all cases. As a result, the fact that the strong verbs are the primary verbs, i.e. part of the lexical core of Germanic, cannot be taken as an *a priori* counter-argument against external influence. Needless to say, the ultimate decision on this matter can only be brought about by etymological proposals for these non-etymologized verbs, which is for the most part an endeavour to be undertaken in future research. This study demonstrates the need for more work in this direction. In addition, it is noteworthy that Category D verbs are found regardless of morphological construction. No type of inherited stem formation found in Germanic is exempt from having some members without an Indo-European etymology. Examples for this are ⁺*wōp-ja-* ‘cry’, ⁺*lē-ja-* ‘revile’, ⁺*klau-ja-* ‘scratch’, ⁺*le-ska-* ‘quench’ and ⁺*wa-ska-* ‘wash’, all of which show Indo-European thematic suffixes, but have no accepted etymology.

As Vennemann (1998a: 42) points out, due to the notorious “labial gap”, i.e. the fact that in Indo-European ⁺*b* was very rare (if it existed at all), strong verbs with a ⁺*p* in free position (IE free ⁺*b* > Gmc. ⁺*p* by Grimm’s Law) are likely to be of non-Indo-European origin.¹⁶⁹ By and large this prediction is confirmed in the quantitative analysis: Only three verbs with a free ⁺*p* are found in categories A or B, while the overwhelming majority of these verbs, e.g. ⁺*helpa-* ‘help’, ⁺*hlaupa-* ‘run’ etc., have to be placed in categories C or D. The first exception is Gmc. ⁺*seipa-* ‘drip’ which, according to Seebold (1970: 391) and Rix (2001: 521), has a clear cognate in Gk *εἶβω* ‘let flow’ and a doubtful correspondence in Toch. A

169. Meid (1989) argues vehemently against the non-existence of IE ⁺*b*, and advances the hypothesis that this sound was rare due to sociolinguistic reasons. Meid’s observation (p. 6) that *rare* does not automatically mean ‘non-existent’ is certainly correct, and until the few cases of IE ⁺*b*, e.g. in OI *bála-* ‘power, strength’, can be explained otherwise, the occasional existence of IE ⁺*b* has to be assumed. However, its rarity cannot be disputed and therefore the suspicion expressed in Vennemann (1998a: 42) is in principle valid, although all cases have to be examined individually.

siptār (without ascertained meaning, see Rix 2001: 521). The Greek etymological dictionaries, Frisk (1960–1972, s.v. $\epsilon\beta\omega$) and Chantraine (1986–80, s.v. $\epsilon\beta\omega$), however, are not so sure about the word's origin. Nonetheless, the correspondence seems secure enough not to cast too much doubt on the Indo-European origin of Gmc. $^{+}seipa-$. In addition, there is $^{+}skrepa-$ 'scrape, scratch' which, according to Seebold (1970: 425), has direct cognates in Latv. *skrabt* 'scratch, scrape', and Russ. *skresti*, *skrebú* 'scratch, rub' and correspondences without s-mobile in Wel. *crafu* 'scratch, rub' and Lith. *krapštyti* 'scratch, rub', the latter showing *-p-* instead of required *-b-*. This is confirmed in Rix (2001: 562), who adds L *scrobis* 'pit'. Nonetheless, all adduced cognates are from neighbouring languages, thus the proposed etymology and the reconstruction of the root IE $^{+}(s)kreb-$ on this basis are weakened. Consequently, Gmc. $^{+}skrepa-$ is placed in Category B, which makes it a likely Indo-European word despite remaining doubts. The last case, Gmc. $^{+}hneipa-$ 'bow, bend', is in a similar situation. According to Seebold (1970: 267) and Rix (2001: 365), there are two potential cognates, Lith. *knimbù*, *knibtì* 'to shrink down' and *kneĩbtis* 'to give in, immerse'. For the purpose of the classificatory system used in this study, Gmc. $^{+}hneipa-$ is placed in Category B, as all potential cognates are from one neighbouring language, the etymology is weakened to Category B, and one may in fact question the etymology as such, because of the serious formal problems and the distribution of the potential cognates. Thus, all the exceptions have at least minor weaknesses in their etymologies, which perhaps does not license the generalization that every Germanic strong verb with a free ^{+}p lacks an Indo-European etymology, but it would certainly be correct to say that the majority of these verbs possesses either uncertain Indo-European etymologies or none at all (Category C or D), and that two verbs form likely exceptions all of which is completely in line with what is securely known about IE ^{+}b .

It is another noteworthy fact that there is a connection between structure, semantics and etymology. Seebold (1970: 230) notes a group of at least eleven verbs in classes I to III with a similar root structure, C+r/l+e+i/u/N- (e.g. $^{+}sleika-$ 'sneak', $^{+}kreuka-$ 'creep', $^{+}slenka-$ 'sneak'), and similar meanings taken from the field 'sneak, creep, glide' (here called the SCG-group, see also chapter two), sometimes also with different but not unrelated meanings, such as 'swallow'. Of all these verbs only $^{+}sleida-$ 'glide' and $^{+}slūka-$ 'swallow' are Category A-words, whereas the majority of this group is in categories C and D. Class III contains a particularly interesting set: $^{+}hrempea-$ 'shrink', $^{+}krempa-$ 'cramp', $^{+}skrempa-$ 'shrink, slide', $^{+}slempa-$ 'glide' and $^{+}klempa-$ 'shrink, shrivel'. There may be some

morphological connections involving *s*-mobile. As Southern (1999: 141) points out, *s*-mobile may have been productive on a sub-grammatical level in Germanic. Nonetheless, this possibility clearly needs to be investigated further; in fact Southern (1999) does not provide a solution for this set of verbs, but he (1999: 124) notes that one of the dangers of invoking *s*-mobile in equations is that “many are unappealing at best, *ad hoc* and unreliable at worst”, as the rules for its distribution – despite the many insights his study provides – are not yet entirely clear. The above-mentioned set may perhaps be labelled ‘phonaesthemes’ to capture the striking connection between structural features and semantics. However, further investigation is necessary in order to make any definite suggestions, as e.g. ⁺*gleida*- and ⁺*slempa*- both ‘glide’ can hardly be assumed to represent the same underlying phonaestheme. At any rate, this so-called SCG-group is a good example for an observation made by e.g. Kortlandt (1992: 102–104), namely that in the system of the Germanic strong verbs, the lexical information is often carried by the consonantal skeleton alone. Another example of this connection between semantics and morphology are several class III verbs with geminated *l* or *m* referring to ‘noise’, some of which have doublets with single sonorant, e.g. ⁺*bremma*-/⁺*brema*- ‘roar’, ⁺*hella*- ‘echo’, ⁺*gnella*- ‘shout’, ⁺*skrella*- ‘scream’ (see also chapter two and Appendix B).¹⁷⁰

Returning to the numerical results of the analysis, it remains to be said that words of secure Indo-European origin occur most frequently in classes IV and V as well as among the reduplicating verbs. In all three groups the proportion of Category A words is above average; in class IV the otherwise prevalent picture is even turned completely upside down. Furthermore, it is noteworthy that particularly classes IV and V are much more semantically diverse than the first three classes. The above-mentioned groups of verbs sharing a similar structure while belonging to the same semantic field have no members in classes IV, V and among the reduplicating verbs. Moreover, the etymologies in classes IV and V are generally clearer, less uncertain than in most other classes. It is another peculiar fact that the classes displaying the greatest regularity in their ablaut pattern, i.e. classes I to III and class VI, on the one hand achieved this result by means of massive regularization, but on the other hand contain the highest proportions of words without an Indo-European etymology. Classes IV and V have an ablaut pattern that is deviant from the predominant pattern in the primary system,

170. It is noteworthy that Lühr (1988), despite focusing on expressive gemination, does not include this group.

whereas the reduplicating verbs are a class of their own anyway, yet these groups are clearly more Indo-European from an etymological point of view than any other part of the strong verbs.

As a first conclusion, it can be noted that the total amount of strong verbs without an etymology nearly reaches 50 %, compared with about a fifth that can safely be considered etymologized. These figures significantly surpass the figures found in the literature, which say that one third of the Germanic lexicon does not have an Indo-European etymology. By contrast, Vennemann (2000: 253) supposes that considerably more than 50% of all Germanic words do not have Indo-European etymologies, a position that doubtless is more in line with the results presented here.

However, it could be argued that a situation like this is normal for an ancient language that is not even attested as such.¹⁷¹ Particularly Hittite and Greek have been suspected to contain large amounts of non-Indo-European words. Čop (1979: 21), for example, calls the Hittite lexicon an “enfant terrible” because entire semantic categories consist of loanwords, even basic vocabulary, which is not borrowed easily, has no etymology (cf. also Watkins 2001). After a discussion of the material and a comparison of some related languages, Tischler (1979: 267) concludes that two thirds of the core vocabulary of Hittite are inherited, and that Hittite thus is “nicht wesentlich fremder als das Griechische” (‘not significantly more foreign than Greek’). From this it follows that both Hittite and Greek are said to contain about one third of non-inherited words, which is viewed as being a high proportion. Needless to say, for the part of its primary verbs Germanic surpasses this figure considerably, but since the quantitative study carried out by Tischler (1979) comprises the core vocabulary and not specifically the primary verbs, these figures are hardly comparable to the ones in this study. Therefore, the next section includes quantitative analyses for the primary verbs of Sanskrit and Ancient Greek in order to calculate the relevance of the Germanic results from a comparative point of view.

171. This point was raised by Eugen Hill (Munich) after a presentation of the Germanic results at a talk at the University of Munich (2003). I would like to thank him for suggesting an analysis of the primary verbs of Sanskrit and Theo Vennemann (Munich, p.c.) for suggesting the same for Ancient Greek.

4.3. The primary verbs of Sanskrit

The analysis of the primary verbs of Sanskrit is based on Mayrhofer (1986–) and the *Lexikon der indogermanischen Verben* (first edition, Rix 1998), according to the mechanism as described for Germanic in (15) above with Mayrhofer (1986–) being the base dictionary and Rix (1998) the modifier. As in the Germanic analysis, an etymology on the basis of cognates from neighbouring languages only is downgraded by one degree, which finds additional support by the comments in Mayrhofer (1986–), which generally notes this as a weakening element in the respective etymologies. The use of identical criteria for the Germanic and the Sanskrit analysis makes the results comparable. Contrary to Germanic, however, there is only one analysis for the entire corpus and no further subdivision into individual classes. As verbs in Sanskrit are usually organized into classes of stem formation but not according to ablaut, this is not necessary. However, it may be of interest for future research.

The total number of primary verbs attested securely in Sanskrit, according to Mayrhofer (1986–), is 589, which is significantly higher than in Germanic. A total of 51.8% (305 verbs) are inherited (Category A), 12.6% (74) have inexact cognates (Category B), 17.5% (103) verbs have only uncertain etymologies (Category C) and 17.8% (105) do not possess any correspondences among the related languages (Category D).

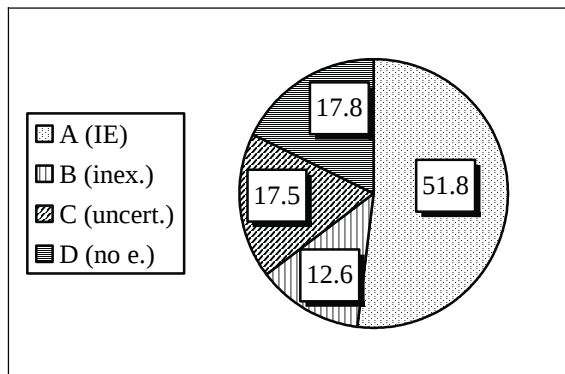


Figure 9. The primary verbs of Sanskrit

Almost two thirds of the Sanskrit primary verbs have etymologies of the highest or second-highest quality, whereas only about a third have either uncertain or no connections outside Sanskrit. It is apparent that this represents a mirror image of the situation found in Germanic (cf. Figure 10).

However, since the Indo-European parent language has largely been reconstructed from Sanskrit, the figures are hardly a surprise. Nonetheless, they underline the peculiarity of the Germanic situation. The next section is on Ancient Greek, because, contrary to Sanskrit, it has the reputation of having a lexicon that has been influenced by non-Indo-European languages (cf. 4.2.9 above).

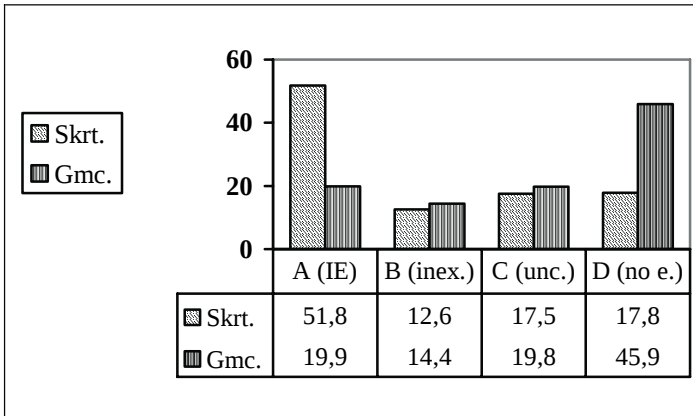


Figure 10. Contrastive analysis Sanskrit : Germanic

4.4. The primary verbs of Ancient Greek

The quantitative analysis of the Greek primary verbs proved more difficult than the investigations of Germanic and Sanskrit described in the previous sections. For Germanic there exists an etymological dictionary of the strong verbs, and Mayrhofer (1986–) indicates primary verbs by capital letters. By contrast, the etymological dictionaries of Ancient Greek are harder to evaluate because the ones most commonly used, Chantraine (1968–80) and Frisk (1960–1972), often do not give unanimous verdicts on etymologies. This problem can largely be solved with the help of Rix (2001), but it does not always facilitate the analysis. Moreover, Chantraine (1968–80) and Frisk (1960–1972) are far more lenient in the construction of their etymologies than Mayrhofer (1986–), Rix (2001) and Seebold (1970). A further problem is that in a number of cases the dictionaries are not certain whether a particular verb is primary or derived. This situation makes it even more necessary to examine each individual case carefully and to apply the mechanism of qualitative evaluation as rigidly as possible,

minimizing the risk of distorted results. As in the case of Sanskrit the results were not further subdivided into groups because a classification into ablaut classes is unsuitable for Greek. The analysis employs the mechanism already described in the previous sections. Accordingly, Chantraine (1968–80) is the base dictionary, Frisk (1960–1972) assumes a control position (similar to that of Kluge 2002 in the Germanic analysis) and Rix (2001) modifies the base categorization. As in the previous analyses, additional modification occurs if etymologies are based on cognates from neighbouring languages only.

The total number of primary verbs is 713, which is considerably higher than the numbers for both Sanskrit and Germanic.¹⁷² Figure 11 illustrates the overall results for the primary verbs of Ancient Greek: 38.8% (274 verbs) have secure Indo-European etymologies (Category A), a further 18.0% (128) have inexact cognates (Category B), 12.5% (89) have uncertain etymologies (Category C) and 30.7% (219) do not possess an Indo-European etymology at all (Category D). As a result, Greek assumes an intermediate position between Germanic and Sanskrit.

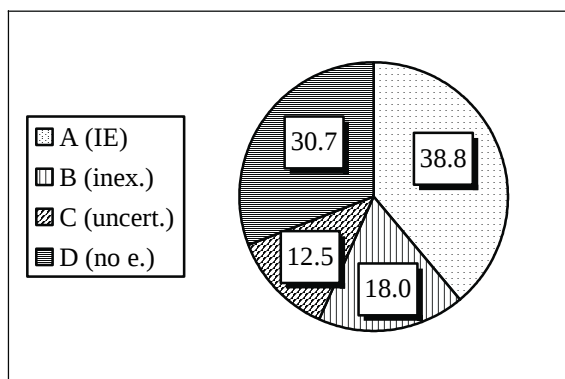


Figure 11. The primary verbs of Ancient Greek

4.5. Contrastive evaluation

Figure 12 contrasts the findings for all three languages. Two facts become immediately obvious. First, the amount of primary verbs without etymol-

172. For some verbs it cannot be ascertained whether they reflect primary or secondary formations. But as this study is designed for a rough comparison, its absolute exactness can be neglected here.

ogy in Germanic is clearly not insignificant; it is considerably higher than in the other two languages compared. Second, the proportion of non-etymologized primary verbs in Germanic is significantly higher than in Greek, which has frequently been suspected of containing a sizeable number of non-Indo-European words. In addition, as mentioned above, the proportion of non-etymologized strong verbs considerably exceeds the estimates for the entire Germanic lexicon (46.5% vs. 33%). Conversely, securely inherited primary verbs are comparatively rare in Germanic whereas in Greek and Sanskrit they form the largest group. The argument that Germanic is attested only indirectly does not convincingly account for these diverging figures. This becomes clear from a comparison between Greek and Sanskrit, which differ considerably in the amount of non-etymologized lexemes: Greek in its earliest form is attested earlier than Sanskrit, but it contains a significantly higher proportion of primary verbs without an Indo-European etymology. In addition, the distributional analysis shown in the sections on Germanic demonstrates striking connections between etymology, semantics and morphology, which can hardly be attributed to coincidence.

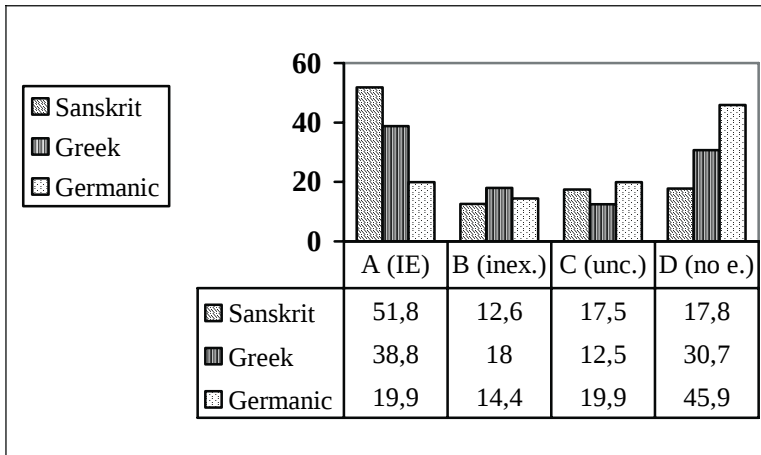


Figure 12. Contrastive Analysis Sanskrit : Greek : Germanic

From this contrastive evaluation several conclusions may be drawn: First, the etymological situation of the Germanic strong verbs is a genuine peculiarity that is in need of explanation. Moreover, the problem that nearly half of the Germanic primary verbs have no etymology has to be addressed comprehensively and constructively in contrast to the sweeping claims often made in the past. It is also evident that this phenomenon cannot be

regarded as merely an insignificant oddity amongst the many idiosyncrasies the older Indo-European languages (or any language, for that matter) display. This becomes especially apparent if the wider implications of the etymological situation are considered. On the one hand areas have been pointed out that are in need of further research; on the other it has been demonstrated that basic scientific approaches have not necessarily become standard practice in philology. One cannot reasonably make scientific statements concerning the etymological situation of a language without having any quantitative data. Another reason why the results of this investigation are significant is their historical importance. If, as several authors have suspected, it could definitely be shown that a considerable proportion of the Germanic strong verbs are indeed loanwords from a non-Indo-European language, then this would obviously affect the prevalent model of the genesis of Germanic.

Second, the etymological situation of the Greek primary verbs may be throw a new light on the degree of non-Indo-European influence on the Germanic strong verbs despite the speculative nature of such an inference. Since non-Indo-European influence on the Greek lexicon is an accepted fact, a proportion of the hitherto non-etymologized Greek primary verbs may therefore be of non-Indo-European provenance. The fact that Germanic shows an even higher proportion of non-etymologized primary verbs, may at least partly be due to non-Indo-European influence, in particular as it is known that Germanic was not an isolated language but was in contact also with non-Indo-European languages.

Third, Hittite, as the oldest attested Indo-European corpus language (Tischler 1979) probably contains about as many potential loanwords as Greek. Thus, the time of attestation probably does not play a significant role in the quantitative analysis carried out here.

5. Summary of chapter three

The main results of this chapter can be summarized as follows: Section one defined the concept of the etymological approach used in this study as a retrograde and reconstructive diachronic investigation of structural as well as lexical entities. In this sense, etymology analyses the history and the origin of a given lexical unit or a structural property of a language, thus licensing the position of a sub-division into the fields of Lexical Etymology and Structural Etymology. Both sub-disciplines have an almost identi-

cal conceptual aim and more or less the same tools at hand. In a complete investigation they necessarily have to complement each other.

Moreover, a brief review of the etymological research on Germanic has revealed that, after a rather inactive period, some problems of this language are being examined with renewed vigour. Particularly the problem of the origin of words and structures but also of the Germanic language itself seem to be primary goals of the recent research on Germanic. According to the general opinion, the Germanic strong verbs are largely inherited from the parent language, as they are the primary verbs, thus belonging to the core vocabulary. In comparison to languages such as Hittite and Greek, the literature does not view Germanic as unusually foreign, but as a rather isolated branch on the fringe of the Indo-European language family. This section also noted the almost complete lack of any quantitative etymological study, not only for Germanic but also for the related languages, which is all the more surprising in the view of the frequent statements made on the etymological situation and the origin of Germanic.

In section three, the background theory and the methodology of the quantitative approach proposed in this study was outlined and established. In principle, the traditional tools of reconstructive research are acknowledged and employed. Nonetheless, the postulate of the predominance of attested forms has to be amended in individual cases, and reconstructed forms have to be admitted if their existence can be made plausible beyond reasonable doubt. In this sense, etymology could reconstruct well beyond the stages of attestations, but it is also clear that the probability of the correctness of these reconstructions diminishes rapidly outside the area of attestations. This can be seen from the assumptions on Pre-Indo-European made e.g. by Lehmann (2002) and Pooth (2001, 2003), both of which involve considerably more speculation than approaches working with attestations.

Section three argued for the qualitative evaluation of etymologies. The criteria mentioned by Seebold (1980), which include the factors that strengthen or weaken an etymological proposal, are incorporated into the proposed methodological framework. Accordingly, each etymology is categorized into one of four classes reflecting its quality. This multi-layered classification is necessary in order not to polarize the results but to balance out the more extreme cases. The criteria of etymological quality are based on Seebold (1980) and involve the accuracy of the proposed equation on formal and semantic grounds, the situation of attestation and the question whether there are any competing etymologies. The data is evaluated based on the qualitative evaluation by the foremost expert in

strong verb etymology, Elmar Seebold. However, due to the fact that the information in Seebold (1970) is sometimes dated, two other basic dictionaries are included in the qualitative analysis, namely Rix (2001) and Kluge (2002). Furthermore, in line with modern etymological research, etymologies based only on cognates from neighbouring languages contain an internal weakness, and thus cannot provide a secure etymology. This is reflected in the mandatory downgrading of the relevant cases. Consequently, the methodology, as laid out in section three, is characterized by an independent qualitative categorization in combination with a subsequent quantification.

Section four stated the main result of the quantitative analysis, which is that 46.5 % of all Germanic strong verbs do not have an accepted Indo-European etymology. It is obvious that this is significantly more than previously assumed for the entire Germanic lexicon (33%). Furthermore, the proportion of securely Indo-European strong verbs is considerably lower (19.9%) than generally presumed (cf. Meid 1971, 1984). It is also noteworthy that the ablaut classes with the highest degree of systematization, i.e. classes I to III, and VI, are also those with the highest amount of non-etymologized words. The ‘most Indo-European’ groups are classes IV and V as well as the reduplicating verbs, although the proportion of inherited verbs never exceeds 50%. Strong verbs without Indo-European etymology can be found regardless of Indo-European stem formation, which means that also words without etymology (Category D) can display properties of Indo-European stem-formations. Moreover, the vast majority of Germanic strong verbs containing a free ⁺*p* do not have good Indo-European etymologies, which is what is to be expected due to the notorious “labial gap” (Vennemann 1998a: 42–43). In addition, there is the remarkable phenomenon that certain verbs with structural similarities also show semantic correspondences.

Section four also contains quantitative analyses for the primary verbs of Sanskrit and Ancient Greek. Accordingly, Sanskrit presents a virtual mirror image of the situation in Germanic with more than half of the verbs being inherited and only 17.8 % being without an Indo-European etymology. Greek, which has a reputation of being ‘foreign’, ranges in-between Germanic and Sanskrit, but the proportion of non-etymologized verbs does not quite reach one third. By contrast, Greek, proportionally, has twice as many inherited primary verbs as Germanic, despite its well-known contacts with non-Indo-European languages.

The central result of this chapter is that among the Germanic strong verbs there are significantly more words without an Indo-European ety-

mology than previously thought. Moreover, this proportion clearly surpasses that of the primary verbs of Sanskrit and Ancient Greek. The results of the three quantitative analyses are obviously comparable, as they were carried out by the same person according to identical criteria based on material of comparable quality. As a result, in this area of investigation, i.e. in the field of the primary verbs, Germanic clearly has the lowest proportion of indisputably inherited words, namely roughly one fifth.

Chapter four

Conclusion and further thoughts

1. Conclusion: The Germanic strong verbs as a new system

This study had a twofold aim, first, to analyse the morphological regularities and irregularities behind the system of the Germanic strong verbs, and second, to conduct a quantitative and comparative investigation of their etymological situation. The working hypothesis of the morphological investigation (chapter two) stated that the Germanic strong verbs differ from the verb system of the parent language in their systematic organization as well as in the use of ablaut. Moreover, it was posited that certain irregularities within the system reflect processes of fusion and over-generalization that obscured earlier morphological and semantic distinctions.

These assumptions were largely confirmed by the morphological analysis carried out in chapter two. Of the four morphological properties used in the verbal stem formation of the parent language (ablaut, reduplication, position of word stress and affixation) only two are used in Germanic, namely ablaut and reduplication. In the system of the strong verbs, reduplication is clearly of secondary significance, as it is employed as the marker of the preterit in only a small minority of verbs, the so-called reduplicating verbs. The dominance of ablaut continues in most Germanic daughter languages, as reduplication develops into an ablaut-like vowel alternation in the North and West Germanic dialects. In contrast to the parent language, in which verbal stems were classified according to the type of stem formation used, Germanic re-organized its primary verbs completely around ablaut. This organization according to ablaut patterns, which in turn are dependent on a verb's phonological root structure, is one of the hallmarks of the Germanic strong verbs. Once a verb is assigned an ablaut pattern, its paradigmatic stems are completely predictable. By contrast, in the parent language the inherent verbal aspect determines the basic aspectual paradigm, but the other stem formations are not fully predictable.

Apart from being systematized as the central ordering device of the Germanic strong verbs, ablaut was also functionalized to express grammatical categories on the verbal stem. Within the verbal stem ablaut is the

only marker of grammatical categories, e.g. present, preterit singular vs. preterit plural. This contrasts with the situation in Indo-European, where roots of different structural properties have also been identified, yet they have never been connected to the construction of an entire paradigm based on ablaut. Because ablaut is functionalized, i.e. it can express a grammatical category in a distinctive way, and systematized, i.e. verbs can be classified according to their ablaut pattern, the role of ablaut in Germanic verbal morphology is typologically similar to that in the Semitic languages. There, ablaut distinctively marks grammatical categories, and verbs can be grouped by virtue of their consonantal root structure and their ablaut pattern (see e.g. Bergsträßer [1928] 1989; Bartelmus 1994: 61–62; Lipiński 1997: 358; Versteegh 1997 and Stempel 1999). Needless to say, Semitic uses ablaut much more extensively than Germanic, but both share the principle of a functional and systematic ablaut, which is typologically different to the general Indo-European model.

The predominant position of ablaut in Germanic becomes especially clear from section two in chapter two, which illustrates the high degree of systematicity in the strong verbs' organization. Several elements can be differentiated: First, a primary system with strong foundations in Indo-European morphology, comprising the classes I to V. Second, a secondary system that displays a remarkable homogeneity though it cannot be directly traced back to the parent language. Third, there are the reduplicating verbs, which have retained reduplication as a morphological marker of the preterit probably due to the lack of available alternatives. All strong verbs are initially placed into one of these systems in accordance with their root structure. Verbs in the primary system are then further separated into subclasses, depending on phonological root structure, in contrast to ablauting verbs in the secondary system, which form only one group. As the root vowel of an ablauting verb is responsible for the allocation of the ablaut system, but then acts like an empty slot that is filled according to the relevant ablaut pattern, it is of great functional but of little lexical significance. This represents another typological similarity to the Semitic languages with their consonantal roots, a fact that has been noted before (see e.g. Kortlandt 1992: 104 and Scheer 1995). Thus, a first result of this study is the considerable typological difference between the verb morphology of Germanic and the Indo-European parent language regarding the use of ablaut. The Germanic system appears drastically simplified, yet highly organized around a single morphological property that is of minor significance in Indo-European.

As several authors have already noted, the strong verbs are the result of some process of syncretism or fusion, as well as the over-generalization of one productive pattern, of which certain irregularities bear witness. The closer inspection of the morphological characteristics of each class reveals the following facts: The primary system's ablaut pattern is comparatively archaic in the sense that it reflects the differentiation of a strong and weak stem in the preterit, which is absent from both the secondary system and the reduplicating verbs. Nonetheless, it is the primary system that exhibits more irregularities on the surface than the other two groups. On the one hand, these are caused by sound changes that affect the root vowel, resulting in a change of the entire ablaut pattern. On the other hand, there are deviations from the regular root structure that cannot be explained by diachronic phonology, as they are by-products of a process of fusion and over-generalization (cf. also below). One obvious irregularity is represented by the long-vowel preterits in classes IV and V, an issue that has attracted much attention in the literature. The detailed discussion of the major approaches can be summarized as follows.

First, the *e*-full grade in the past participle is anaptyctic, and corresponds to the root vowel of the lexical base, i.e. the present stem. Initially it is introduced to CeC- roots, and subsequently spreads to the other verbs with a single root-final obstruent. Verbs with two root-final obstruents as well as those with one root-final sonorant do not take part in this process. Second, as suggested by Mottausch (2000), the lengthened grade in the preterit plural stem spreads from the paradigm of ⁺*eta*- 'eat' to all verbs with one root-final consonant because this innovation represents a systematic morphological advantage that does not violate any phonotactic constraints of the system. In this process structural resemblance and system-internal requirements seem to take precedence over considerations of frequency. This can also be seen from the fact that verbs with two root-final consonants keep their inherited pattern, and do not adopt the lengthened grade, even if a regular zero grade leads to phonotactically problematic forms of the onset of the root (as in ⁺*fehta*- 'fight'). Third, whatever the speed of the spreading process, its consistency suggests an early start, probably right after the loss of reduplication in Pre-Germanic times. Fourth, the much more limited spread of the *e*-full grade in the past participle may indicate that the preservation of distinct ablaut grades for present vs. past stems has to be seen as a distinct property of the inherited ablaut system, which was not easily overridden. Fifth, in the assignment of ablaut classes a new structural constraint for class III can be formulated, namely CeCC- instead of the traditional formula CeRC-. Although class IV is

really only a subdivision of class V, it is preferable to keep it separate, due to its stable and different ablaut pattern, and also because it is clearly structurally definable. In class V, the existence of verbs with a class IV pattern, e.g. OHG *sprehhan* 'speak', has to be tied to the sonorant in the root-initial cluster. To sum up, the examination of the diachronic and distributional data sheds light on the classic problem of the lengthened grade in the preterit plural of classes IV and V as well as the full grade in the past participle of class V. However, the review of the existing hypotheses on the origin of the lengthened grade has shown that this issue is in need of further investigation, which hopefully will be facilitated by the results presented in this study.

As noted above, the secondary system exhibits fewer irregular features that show up on the surface. However, its prehistory is more complex than that of classes I to V. First of all, it has to be emphasized that the secondary system is clearly distinct from the primary system by a completely different ablaut pattern, and consequently should be described separately. Nonetheless, it is clear that the secondary system with only two different ablaut grades provides the model for the post-Germanic period; most ablauting verbs levelled the different ablaut grades of preterit singular and plural, and moreover the reduplicating verbs developed an ablaut-like distinction systematically modelled on class VI (one ablaut grade in the pret. sg. and pl.) in all Germanic branches except East Germanic. The key to the genesis of class VI is the origin of its preterit; this study proposes a virtually regular development from perfects of verbs with a root-internal laryngeal in the parent language, which is perhaps the most significant find (see also Schumacher 2005). In contrast to primary *a*-verbs, secondary *a*-verbs (IE $^{+}o > \text{Gmc. } ^{+}a$) are the product of processes in which several types of verbs merged. Among the secondary *a*-verbs in class VI, there may be remnants of presents ending in $^{+}h_2e$. In contrast to Jasanoff (2003), who views this type of stem formation as a parallel way of forming present stems, the Germanic data is more in line with the interpretation by Mottausch (1996), arguing that the $^{+}h_2e$ -conjugation originally served to derive intensive-iterative verbs from primary *e*-verbs, i.e. verbs with a canonical root structure. If this is correct, Germanic rudimentarily displays the same dichotomy between (original) *-mi* verbs, i.e. regular athematic present formations, and $^{+}h_2e$ -verbs, which would then be a parallel to Hittite with its well-known *hi*-conjugation. However, it has to be emphasized that the evidence for this interpretation is by no means compelling; there is some indication in support of it, but on the whole there is still a great deal of speculation involved. In addition, the number of verbs that can potentially be explained

this way is fairly low. Nevertheless, this approach may well be able to shed some light onto the history of class VI if additional evidence can be adduced.

The reduplicating verbs of Germanic to some degree assume the function of a safety net for the primary verbs; they comprise mostly verbs that, mainly due to phonotactics, could not form stem distinctions on the basis of inherited ablaut, and thus retained the archaic feature of reduplication to indicate the categorial opposition between present and preterit (for the Gmc. ⁺*ē*₁- verbs, e.g. ⁺*lē*₁*ta*- ‘let’, see 3.3.1 in chapter two). Furthermore, there are several verbs among the reduplicating verbs that may be original derivatives from primary *e*-verbs, a function usually associated with the weak verbs. Originally, the reduplicating verbs had regular perfects, which probably differentiated a strong from a weak stem, although the Germanic daughter languages do not attest this contrast directly. The assumption of otherwise regular perfects without this paradigmatic contrast is implausible because it goes against the systematic requirements of Indo-European verb morphology.

Section four of this chapter examined the various irregular features of the strong verb system in order to locate the above-mentioned processes of syncretism and analogical change as well as to investigate their extent. The first part of this section argued against traces of the aorist in the Germanic strong verb system. This complete and traceless loss of the aorist as a morphological category is a peculiarity of the Germanic verbal system that has not been convincingly explained so far (but see Mailhammer 2006). The most salient witnesses of regularization and uniformization are obvious changes of stem formation. Germanic present forms displaying an inherited thematic suffix requiring zero grade of the root in Indo-European, but having a regular root vowel, are most likely the result of a normalization of root vocalism. There are numerous instances in which the root-vocalism was adapted to match the predominant R(*é*)-*e*-type. In some cases, such as OHG *queman* vs. OE *cuman*, there are doublets showing the regular type of stem formation beside a zero grade formation. There is a tendency within the strong verbs to alter the stem formations in favour of one type, the R(*é*)-*e*-present, a process that is called “uniformization”, following van Coetsem (2000).

The zero grade presents in Germanic have been the topic of numerous studies. Traditional approaches simply equate the type of OE *cuman* ‘come’ with OI *tudāti* ‘strikes, pierces’, positing the existence of an Indo-European simple thematic present with zero grade, which, apart from the lack of the augment and the primary endings, looks like a late-Indo-

European thematic aorist. By contrast, some authors have rejected this equation and also the idea of such a type of stem formation in the proto-language. The reason is chiefly that the notion of a simple thematic present that looks like a thematic aorist presents many difficulties for the reconstruction of the verbal system of Indo-European. However, as Eugen Hill (Munich, p.c.) has pointed out, this parallelism is mirrored by athematic formations, showing a dichotomy of root present and root aorist. Consequently, the zero grade present is a good deal less problematic than the issue of thematization itself. Nevertheless, the fact remains that, from a diachronic perspective, the overwhelming majority of the Germanic strong verbs represent present stems of the *bhárati*-type. As argued in section four of chapter two, it has to be assumed that this type spread considerably, replacing alternative formations, such as the *tudáti*-type, in a significant number of cases. For Germanic two types of simple thematic presents have to be posited which are directly attested in the daughter languages: the spreading *bhárati*-type and the recessive *tudáti*-type (alongside relic forms of other types of stem formation). The remainder of this chapter searched the corpus of strong verbs for more original zero grade presents, since the regular doublets of some verbs strongly suggest that most original zero grade presents were regularized in Germanic. Motivated by a central claim in the works of Josef Jarosch positing that 90% of all Germanic strong presents used to be zero grade presents, which echoes a suspicion by Prokosch (1939), it can be concluded that there are more zero grade presents among the strong verbs than previously assumed, but nowhere near Jarosch's 90 % (cf. also Appendix A). Maybe the most prominent original zero grade presents that have been confirmed in this study are the *ū*-verbs in class II. From the investigation presented in this section, it becomes clear that a major part of the strong verbs is the product of a process that combined categorial simplification with morphological regularization and uniformization. The result of this development is a highly homogeneous system organized around a single morphological property and one prevalent type of stem formation.

One important result from the discussion of the history of modern etymological research in chapter three is the concept of an 'etymological approach' as a reconstructive investigation of either a lexical item (*Lexical Etymology*) or a structural feature (*Structural Etymology*). Thus, a subdivision of the linguistic discipline of Etymology is proposed, which is based on a distinction made by Vennemann (2000). Moreover, a brief review of recent etymological studies in section two of chapter three confirmed the significance of Germanic and its strong verbs in historical linguistic re-

search. But it also noted that the cardinal problems of Germanic have not been sufficiently explained. It was further asserted that there are virtually no quantitative etymological studies on any older Indo-European language, particularly none investigating the Germanic strong verbs. However, due to the broader implications etymological facts have for the history of a language and its speakers, a quantitative analysis can be considered the starting point of a scientific investigation. Furthermore, the morphological results mentioned above can be interpreted more adequately with the help of etymological results.

Section three of chapter three covers the methodological part of the quantitative analysis: The approach developed there works largely with the reconstructive methodology and the tools described in any good textbook of etymology (e.g. Seebold 1981 and Birkhan 1985). Nevertheless, two points of criticism against more conservative approaches are pointed out. First, the absolute predominance of attested forms has to be relaxed if the existence of certain reconstructed forms can be posited beyond reasonable doubt. Second, the virtual exclusion of pragmatic and semantic factors found in older studies cannot be supported.

In this section, a system for the qualitative evaluation of etymologies is developed, which forms the basis for the quantitative analysis. Although an etymology ultimately is either correct or incorrect, this study follows Seebold (1980), saying that etymologies can be evaluated qualitatively according to a transparent set of criteria. Based on the criteria given by Seebold (1970 and 1980), etymologies were divided into four categories reflecting their quality. This classification permits a flexible, yet consistent categorization that is applied according to a strict and transparent mechanism. Apart from the criteria and considerations presented in Seebold (1980), two additional factors influencing the qualitative evaluation of etymologies in this study were introduced to reflect recent advances in the field of etymology as well as language contact theory.

Thus, every strong verb's etymology was categorized according to quality and then quantified. It has to be emphasized again that the method employed aims at guaranteeing a maximum of objectivity and transparency by observing the following rules: First, the qualitative evaluation is strictly based on the judgments by the etymologists in the dictionaries used. Second, the mechanism of categorization developed for this study was applied mechanically and rigidly to avoid any distortion of the data. Consequently, the results give a fairly detailed and accurate picture of the etymological situation of the Germanic strong verbs, although in individual cases the

categorization is subject to future fine-tuning due to the existence of specialized case studies that are not part of the etymological database covered by the dictionaries used in this study. The results of the etymological analysis stand in contrast to the general opinion, according to which the majority of the Germanic strong verbs are of Indo-European origin. Almost fifty percent of all Germanic strong verbs have no Indo-European etymology. For only about a third of all strong verbs convincing or probable etymological proposals exist, considerably less than commonly assumed either for the strong verbs or the Germanic lexicon as a whole.

From this it follows that a significant part of the core vocabulary of Germanic requires further etymological investigation in order to ascertain its origin. It is known from contact linguistics that contact with other languages is the normal case, whereas completely uninfluenced languages in which all changes are the result of internal innovation are actually comparatively rare. Thus, although the etymological results of this study do not directly suggest external influence on Germanic, the surprisingly high proportion of Germanic strong verbs without an Indo-European etymology renders indirect support to hypotheses assuming external influence. This becomes particularly clear when the Germanic situation is compared with that of Sanskrit and Ancient Greek. Consequently, the etymologization of the unaccounted vocabulary is an important task for future research, and in spite of the above-mentioned null hypothesis it is certainly justified to attempt to connect the problematic lexemes outside Indo-European, as these words may indeed turn out to be loanwords.

2. Implications on the history of Germanic

This study provides a database for future research in the field of etymology, as it contains the relevant etymological data on each Germanic strong verb. This was formulated as a central aim of the present study in chapter one. Consequently, the next steps ahead involve the etymologization of the hitherto non-etymologized strong verbs, a task largely left to future research. However, in particular the sizeable number of lexemes without any connection whatsoever among the related languages, i.e. those verbs that were placed in Category D before any modification, vindicates the incorporation of etymological proposals based on external influence, i.e. the contact with non-Indo-European languages, provided that the relevant approaches adhere to the methodological criteria for the position of external influence on a language that have been formulated in the literature on con-

tact linguistics (cf. 2. and 3. in chapter one). It is apparent that, should a substantial proportion of the Germanic strong verbs really be identified as loanwords from a non-Indo-European language, this would permit several interpretations with regard to the cultural history of Germanic.

First, it could be suggested that the Germanic speakers systematically formed new words, even for the most basic actions, a scenario that is highly unlikely. Second, it could be argued that Germanic has preserved ancient vocabulary, since it is often seen as a fringe dialect. The problem with this hypothesis is that it presupposes that Germanic left the Indo-European language community at a very early stage, and stayed relatively isolated for a long time. However, the numerous simplifications and over-generalizations found in Germanic speak against this because isolated languages usually tend to preserve structures and lexical material fairly well. Moreover, in numerous cases there are no cognates, not even remote correspondences, in any of the related languages. If Germanic really had transported ancient material, then it seems odd that absolutely no traces are found in other Indo-European languages, including those that are attested much earlier than any Germanic language. In addition, recall that language contact is actually the norm from a cross-linguistic point of view. Third, Germanic innovatively changed from the Indo-European parent language in a very drastic way for reasons which may be discovered through future research. This echoes Meid (1984) and is not an explanation but a belief. Moreover, note that the prevalent approaches are descriptive, and hardly contain any explanatory elements at all, i.e. they typically do not explain why Germanic changed the way it did.

Fourth, Germanic constituted itself as the product of language contact. Although this has been proposed in the literature (cf. chapter one), there is actually only one proposal that takes the strict methodological requirements of language contact theory into consideration, identifying a source language and the socio-historical circumstances of the contact situation, as well as proposing contact phenomena on the lexical as well as the structural level (see 3. in chapter one for an overview). Nonetheless, as already argued in chapter one, more detailed investigations are necessary in order to solidify or falsify this theory. In particular, the structural contact phenomena have to be linked to a concrete language system, a suggestion for the strong verbs can be found in Mailhammer (2006), which will be briefly touched upon below. Moreover, more non-Indo-European etymologies, especially in the area of the strong verbs, have to be established. As demonstrated below, however, future research may also provide Indo-European etymologies for hitherto non-etymologized strong verbs. Despite the fact

that mainly future research may ultimately solve the question of non-Indo-European influence, for the strong verbs this study is able to contribute the following facts and considerations:

First, the system of the Germanic strong verbs is characterized by several diachronic processes that are frequently found in situations of language contact, specifically in situations of second language acquisition (see e.g. Weinreich 1968; Werner 1984; Appel and Muysken 1987: 90; Stedje 1987: 109; Thomason and Kaufman 1988: 74–75; van Coetsem 2000: 182; Winford 2003: 25–28; Riehl 2004; Sankoff 2004; Heine and Kuteva 2005). As pointed out in chapter two, the system of the Germanic strong verbs displays several drastic simplifications in comparison with the verbal system of the parent language. This concerns reductions on the categorial level, of which the traceless disappearance of the aorist is particularly noteworthy, as well as on the systematic level, i.e. the transformation of a more complex system of aspect, tense and mood to an opposition that is mainly based on the contrast between past and present tense. In addition, the predictability of stem formation is greatly increased by the systematization and functionalization of ablaut, which is tied to the phonological root structure of the lexical entry. It is apparent that the simplification of the entire system and the increased predictability of grammatical forms are highly suited to the needs of second language learners. In addition, as demonstrated in chapter two, the system of the Germanic strong verbs is characterized by a striking uniformity and regularity that was achieved through over-generalization of one predominant model of stem formation at the expense of all others. As particularly section three in chapter two demonstrated, the diversity of Indo-European stem formations was virtually levelled after the model of one type in a process of uniformization. From a diachronic perspective, though the Indo-European stem formations are generally visible, they are completely without function in Germanic. In numerous cases the type of stem formation was changed radically to match that of the *R(ē)-e*-type. Verbs that originally formed their present stem with zero grade (the existence of the *tudáti*-type is confirmed in this study) experienced the most drastic alterations, as root vocalism and consonantism were often regularized. As van Coetsem (2000: 182–183) points out, although regularization and uniformization are both reductions, the former refers to the reduction of the exceptions of a given rule, whereas the latter refers to the reduction of the numbers of variations in the expression of a grammatical category. Although regularization is also found in purely internal changes, uniformization is a typical characteristic of language con-

tact situations (van Coetsem 2000: 183). As this study has shown, the system of strong verbs shows traces of both processes.

Second, as demonstrated in chapter two, the position of ablaut in the system of the Germanic strong verbs is typologically different from that in the verbal system of the parent language. This concerns mainly the fact that ablaut is used as a distinctive morphological feature in the stem formation of the strong verbs in contrast to the parent language, in which ablaut is used as a redundant feature. Although languages can develop typologically different structures through internal change too, typological change is also a well-known result of language contact.

Third, the etymological data confirms the suspicion voiced by some authors (cf. chapter one) that a significant number of the Germanic strong verbs do not have Indo-European etymologies. However, this does not automatically disprove the traditional view, according to which the majority of the strong verbs are of Indo-European origin, as this could only be done by actual non-Indo-European etymologies for the hitherto non-etymologized words. Consequently, although the etymological investigation cannot provide a direct argument for or against language contact, it shows that, on the basis of current etymological knowledge, non-Indo-European influence on the Germanic primary verbs cannot be ruled out. In particular, the extent of the non-etymologized vocabulary casts doubts on the traditional hypothesis, assuming a purely internal genesis, although a definite answer to this question has to be left to future research. At any rate, the quantitative data collected in this study strongly suggests that considerably more etymological work remains to be done in the area of the Germanic strong verbs than previously assumed. To sum up, the structural and etymological investigations carried out in this study cannot offer any direct evidence as to the genesis of Germanic. This is not at all surprising, as the goal was to examine the structural peculiarities and to quantify the etymological situation of the Germanic strong verbs, and thus to provide a database for future research. However, as noted in chapter one, one aim of this study was also to contribute to the investigation of the genesis of Germanic. This is the reason for presenting some additional considerations

3. Possible pathways for future research

The structural investigation has demonstrated that certain characteristic features of the Germanic strong verbs may be explained more easily with an approach based on language contact. Note that, although the Indo-European heritage of the morphological material is uncontested, it is the way it was re-arranged in Germanic that is remarkable, matching the predictions of language contact theory. In particular the typological difference, the drastic simplification and the process of uniformization would require special motivations from an internal point of view, as it does not seem sufficient to merely describe these features. Thus, the structural data may be easier to explain with the help of language contact. A possible scenario involving the genesis of the Germanic strong verbs was sketched by Vennemann (1998a: 41–42). In Mailhammer (2006) this scenario is fleshed out with Punic as an assumed contact language. The Punic verbal system shares significant structural features with Germanic: In particular, the original aspectual opposition has largely collapsed with the old perfective aspect having taken over the function of a past tense. In addition, ablaut characterizes the opposition between present and past tense. Mailhammer (2006) shows how interference between the native Punic system (L1) and Proto-Germanic (the target language) in the acquisition process could have led to the changes observed in Germanic. In addition linguistic reasons are given for why these changes could have been carried over and why they could have survived in the Germanic language as spoken by native speakers. Thus, the central result of Mailhammer (2006) is that characteristic peculiarities of the system of the Germanic strong verbs can indeed be explained if the situation is assumed that was outlined by Vennemann (1998a) and Vennemann (2004b), suggesting Punic as the contact language. Mailhammer (2006) also draws attention to the shortcomings of traditional analyses, which are largely descriptive and unable to convincingly motivate the diachronic development of the strong verb system. Consequently, the structural peculiarities of Germanic – not only of the strong verbs – will have to be investigated with the help of concrete scenarios involving concrete linguistic contact structures and systems if the hypothesis of external influence is to be solidified. Conversely, despite the privileged position of the traditional view, according to which everything is considered inherited unless proven otherwise, it seems preferable to work on the basis of a hypothesis motivating the changes Germanic displays rather than merely describing them.

In the field of lexical etymology, future research obviously will have to etymologize the problematic strong verbs and other non-etymologized Germanic lexemes (see e.g. Vennemann 1984a).¹⁷³ In order to sketch possible directions of future research, recent etymological proposals for Germanic strong verbs are presented below. They also demonstrate that the position of non-Indo-European influence is not *a priori* implausible, but that it possesses a high explanatory potential. According to the literature used in this study, Gmc. ⁺*laha-* ‘reprimand’, ⁺*plega-* ‘dedicate, employ’ and ⁺*drepa-* ‘hit’ do not have Indo-European etymologies. The suggestions discussed here present a new Indo-European connection for ⁺*laha-* on the one hand, and a proposal of non-Indo-European etymologies for ⁺*plega-* and ⁺*drepa-* on the other. All three verbs are first categorized according to the mechanism established in chapter three, before the new proposals are discussed.

(27) LAHA- ‘reprimand’ (Seebold 1970: 321)

This verb is only attested in three West-Germanic branches, namely Old English, Old Saxon and Old High German. According to Seebold (1970: 321), it has no exact correspondences “keine genaue Vergleichsmöglichkeit”) in the related languages, as the only cognate Seebold mentions is the Old Irish noun *locht* ‘guilt, mistake’ (Category B). However, as Rix (2001) does not list the verb, and the only cognate form given by Seebold is from a neighbouring language, the etymology is downgraded to Category D. Thus, by the standards used in this study, Gmc. ⁺*laha-* does not have an Indo-European etymology.

However, a very interesting suggestion is advanced by Hill (2002), connecting the Germanic verb to Ved. *rákṣati* ‘protect, mind’ and Gk. *ἀλέξω* ‘repulse’. After a thorough review of the Vedic and Greek attestations, Hill (2002: 250) reconstructs a probable Indo-European meaning for the ancestral form of Ved. *rákṣati* and Gk. *ἀλέξω*, namely ‘to keep sb./sth. away from sb./sth.’. In the view of Hill (2002: 256) the attestations of Gmc. ⁺*laha-* in Old English, Old Saxon and Old High German license the following denotations: ‘reprimand, abuse, reproach, keep s.o. away from’.

173. However, note that from the viewpoint of language contact theory, the assumption of lexical as well as structural influence from an external source is not at all problematic, as stated in the relevant literature (cf. above and Mailhammer 2006 for a summary).

Although, according to Hill (2002: 259), the position of a primary meaning ‘reprimand, abuse’ with a diversification at a later stage is conceivable; he argues for the possibility that the original meaning is ‘keep s.o. away from sth.’ (attested in Old English and Old Saxon), with the other denotations being secondary. Hill (2002: 260) demonstrates the semantic development from ‘keep s.o. away from sth.’ to ‘abuse, reprimand’ and supports this with textual evidence. On the formal side, Hill (2002: 261) unites the Germanic, Greek and Vedic forms under the root of IE $^+h_2lek-$ or $^+h_2lek-$ in contrast to Rix (2001). However, he (2002: 262) notes that the Germanic forms evidence Gmc. ^+a as root vowel instead of the expected ^+e for a thematic present of the *bhárati*-type. Hill (2002: 262) dismisses this problem:

Der *a*-Vokalismus von germ. **lahe/a-* kann aber genauso entstanden sein wie bei germ. **fare/a-* ‘wandern, ziehen’ (got. *faran*, ahd. *faran*) von idg. **per* (ved. *píparti*, *pāráyati* ‘hinüberbringen’, gr. *πείρω* ‘durchdringen’) und den anderen germanischen starken Verben dieser Klasse.¹⁷⁴

In addition, the strong verb that can be reconstructed from the Middle High German past participle *un-ge-lachsen* ‘coarse, uncouth’ could reflect the *-se/o-* present attested in Greek and Vedic. The difference in root vowels is again dismissed by Hill (p. 262):

Der unerwartete *a*-Vokalismus der germanischen Fortsetzung des in der Wurzel *e*-stufigen grundsprachlichen Verbs findet im bekannten Fall germ. **wahse/a-* ‘wachsen’ (ae. *weaxan*, ahd., as. *wahsan*, awn. *vaxa*) aus idg. **h₂uég-se/o-* (gr. *ἄεξομαι*) eine klare Parallele.¹⁷⁵

Moreover, it is suggested that OIr. *locht* ‘guilt, mistake’ may have been derived from a primary *o*-verb that in turn may be connected to the Germanic forms.

174. ‘But the *a*-vocalism of Gmc. **lahe/a-* could have developed exactly like in Gmc. **fare/a-* ‘wander, fare’ (Goth. *faran*, OHG *faran*), from IE **per* (Ved. *píparti*, *pāráyati* ‘to bring across’, Gk. *πείρω* ‘penetrate’) and the other Germanic strong verbs of this class.’

175. ‘The unexpected *a*-vocalism of the Germanic continuant of the Indo-European verb, which forms a root with *e*-grade in the parent language, has a clear parallel in the well-known case of Gmc. **wahse/a-* ‘grow’ (OE *weaxan*, OHG, OS *wahsan*, OWN *vaxa*) from IE **h₂uég-se/o-* (Gk. *ἄεξομαι*).’

As far as I can see, Hill's (2002) proposal has only two minor weaknesses: First, the semantic development could, in principle, have gone in the opposite direction, a fact which Hill (2002: 259) concedes. Second, although the deviant root vocalism in Germanic is not fatal to the proposed etymology, Hill does not explain it. The fact that both cases presented are parallels does not support his reconstruction of Gmc. ⁺*laha-*. The reconstruction of the reduplicated athematic present presupposed for Gmc. ⁺*fara-* 'go, fare' (cf. also Rix 2001: 472) does not necessarily have to be reconstructed with *o*-grade, as Jasanoff (2003: 67) points out. In addition, in the case of Gmc. ⁺*wahsa-* 'grow', an original causative/iterative formation is posited in Rix (2001: 288–289), based on the Gothic data (*wahsjan*), and a secondary development of the strong verb in North and West Germanic is proposed (see also Seebold 1970: 531–532, where the root is reconstructed as Gmc. ⁺*wahsja-*). Although this seems doubtful, given the tendency for strong verbs to become weak and the regulatory processes in Gothic in general, it demonstrates the problems behind the *a*-vocalism in some verbs of class VI. In addition, the stem formation that Hill (2002: 262) considers for Gmc. ⁺*laha-* is not attested outside of Germanic.¹⁷⁶ Consequently, this explanation for the Germanic vocalism, which uses the parallel cases of Gmc. ⁺*fara-* and ⁺*wahsa-*, is not entirely convincing. Nevertheless, this does not constitute a fatal argument for the etymology proposed by Hill (2002). As shown in 3.2.2 of chapter two of this study, the *a*-vocalism in class VI can have a number of sources, which would have to be investigated in more detail for the case discussed here. At any rate, Hill's (2002) proposal considerably improves the quality of the etymological suggestion made by Seebold (1970).

(28) PLEGA- 'dedicate, employ' (Seebold 1970: 363–364)

According to Seebold (1970: 363), this West-Germanic verb offers a host of difficulties ("bietet eine ganze Reihe von Schwierigkeiten"): Firstly, the meanings of the attested forms diverge; the denotation given in Seebold (1970) is only the smallest common denominator. Secondly, the initial ⁺*pl*-cluster points to IE ⁺*bl-*,

176. Recall that in the *tudáti*-discussion in section 4.2 of chapter two above Bammesberger (1984) rejects the connection of OE *cuman* with OI *tudáti* because a zero-grade thematic present is not attested outside Germanic.

which is problematic on account of the rarity of IE ⁺*b* (Seebold 1970: 364 even doubts its existence). Thirdly, OE *plēon* ‘dedicate, make use of’ clearly points to a root-final voiceless fricative Pre-OE ⁺*pleh-*.¹⁷⁷ Seebold (1970: 364) finds it difficult to attribute the difference of *g* vs. *h* in OHG *phlegan* vs. OE *plēon* (< Pre-OE ⁺*plehan*) to Verner’s Law because it is unclear why Old High German should have generalized the voiced Verner variant, and also because all etymological suggestions worthy of discussion presuppose IE ⁺*g^h*.

The only tentative comparisons provided by Seebold (1970: 364) are L *indulgēre* ‘dedicate’ and OIr. *dligit* ‘is licensed, deserves, is necessary’. Despite the rather neat semantic match, the formal side of this set of proposed cognates requires an additional assumption, which is the development of WGmc. ⁺*pl-* from IE ⁺*dl-* (see van Wijk 1908, 1911). However, Seebold (1970: 364) points out that the analysis of L *indulgēre* is unclear and that OIr. *dligit*

177. Despite the fact that OE *plēon* is only attested twice (in Alfred’s Pastoral Care), the noun *plēoh* ‘danger’ (dat. sg. *plēo*) provides solid support for a Pre-Old English root ⁺*pleh-*. It is highly unlikely that *h* in these words is due to over-generalization of regular word-final *h* [x], the result of final devoicing. First of all, it is far from regular that a devoiced velar fricative is spelt <h>, though this frequently occurs in later texts and also in Alfred’s Pastoral Care (Campbell 1959: 180 and Brunner 1969: 176–177). Second, there is no clear motivation for such a drastic over-generalization, bearing in mind that especially in the paradigm of the verb the number of forms with word-final [x] would have been rather small, excluding e.g. most of the present tense forms, though sporadic transfers seem to have taken place (see Brunner 1969: 177). Third, the assumed over-generalization would have had to take place very early as evidenced by the early sound changes visible in both *plēon* and *plēoh* (breaking of ⁺*e* > *eo* before *h* and loss of intervocalic *h* with compensatory lengthening). To be sure, it is also unlikely that *plēon* and *plēoh* received their vocalism analogically; at least in other cases in which final devoicing of velar *g* occurs, the vocalism remains unchanged, e.g. *ūtlah* ‘outlaw’, *lahbryce* ‘law-book’ (Brunner 1969: 177).

Consequently, this Old English material suggests that the Pre-Old-English stem form has to be reconstructed as ⁺*pleha-*, which is highly problematic for the etymological connections mentioned by Seebold (1970: 363–364). The Old English forms with *g*, i.e. *plegian* ‘play, sport’, however, point to Pre-OE ⁺*pleg-*, as do the remaining West-Germanic languages. As argued in the main text, both forms could be explained by a Pre-Germanic form ⁺*blek-*, assuming Verner’s and Grimm’s Law. However, such a root is unknown (see Rix 2001).

shows a considerable semantic mismatch. Thus, Seebold (1970: 364) arrives at the conclusion: "keine brauchbare Vergleichsmöglichkeit" ('no usable comparison'). This verdict is supported by Kluge (2002, s.v. *pflegen*) and also Rix (2001), who does not list it. Thus, Gmc. ⁺*plega-* is placed in Category D, which reflects the categorization by Seebold (1970) and Rix (2001).

Of these three problems mentioned by Seebold (1970: 363–364), the diverging semantic situation is certainly the least difficult: OE *plēon* is commonly translated as 'to put in, to dedicate, to employ', for OFr. *plega* a denotation 'be used to' can be assumed, OS *plegan* has the meaning 'be responsible, vouch for' and OHG *phlegan* denotes 'dedicate, care, supervise, lead'. Thus, Seebold's compromise seems convincing.

From a formal point of view, the tentative etymological connections with L *indulgēre* 'dedicate' and OIr. *dligit* 'is licensed, deserves, is necessary' given by Seebold are highly problematic for mainly two reasons. First, if Matzel and Lühr (1986: 264–265) are right in connecting MHG *spulgen* 'care for, be used to' with Gmc. ⁺*plega-* (via *s-mobile*, which is unproblematic, cf. Southern 1999), then this would obviously be a strong counter-argument against the etymological proposal mentioned by Seebold (IE ⁺*d̥lg^h-* > Gmc. ⁺*tulg-*, preventing a putative change of Gmc. ⁺*tl-* to WGmc. ⁺*pl-*).¹⁷⁸

Second, the Old English forms pointing to a root-final Pre-Gmc. ⁺*k* instead of ⁺*g^h* constitute another serious problem. The Germanic alternation between *g* (OHG *plegan*) and *h* (Pre-OE ⁺*plehan*) could actually be explained by Verner's Law, assuming that OHG *phlegan* and the other *g*-forms represent regularized former zero grade formations, like OE *fregnan* 'ask' (cf. chapter two, 4.2.2), whereas OE *plēon* would represent an *e*-full grade formation (either old or with secondary generalization of the voiceless Verner variant, cf. Goth. *fraíhnan* 'ask'). However, a Pre-Germanic root-final ⁺*k* can neither be reconciled with L *indulgēre* 'dedicate' nor with OIr. *dligit* 'is licensed, deserves, is necessary'. As a result of these considerations, it has to be concluded that the etymological suggestions made by Seebold (1970: 364) display serious formal problems, which is clearly reflected in Seebold's own verdict.

178. I would like to thank Eugen Hill (Munich, e-mail dated 22th December 2006) for pointing MHG *spulgen* out to me.

In view of these facts, the assumption that Gmc. ⁺*plega-* is a loanword from a non-Indo-European language seems a rather good alternative. Vennemann (1998b: 253), after noting that Gmc. ⁺*plega-* has no etymology, recalls the old connection between G *Pflug* 'plough', *pflegen* 'care' and *Pflicht* 'duty', but remarks that WGmc. ⁺*plōg-* 'plough' does not display an ablaut grade usually found in nouns derived from strong *e*-verbs. However, there is a Semitic root *p-l-h* 'furrow', which Vennemann (1998b: 252–253) connects with G *Pflug*, WGmc. ⁺*plōg-*, and ultimately with G *pflegen*. The Semitic root is an offshoot of the biconsonantal base *p-l* 'to divide' which, semantically, matches the noun nearly perfectly. Although, as Vennemann (1998b: 253) points out, there is a semantic gap between 'furrow' and 'dedicate' (Gmc. ⁺*plega-*), he suggests the bridge 'cultivate' as a specialization, a development actually attested for the verb *cultivate* in English (cf. OED, s.v. *cultivate*).¹⁷⁹ Within the framework of his theory arguing for Semitic influence on Germanic, Vennemann (1998b: 253) proposes that Gmc. ⁺*plega-* and WGmc. ⁺*plōg-* are Semitic loanwords that reached Germanic relatively late, namely after the completion of Grimm's Law.

One of the advantages of this suggestion is that the connection of G *Pflug* and G *pflegen* is made plausible on a phonological as well as on a semantic level. The semantic development Vennemann (1998b) proposes is plausible, even more so if it is borne in mind that several hundred years lie between the time when the Semitic verb was borrowed and the attestations in the Germanic daughter languages. However, on the formal side, Vennemann's (1998a) proposal requires some additional assumptions, of which the adoption of the Semitic voiceless pharyngeal (see Lipiński 1997: 141 and Stempel 1999: 60, 68) as a Germanic voiced velar stop is certainly somewhat problematic. Lipiński (1997: 142–144) makes it clear that this development does not occur in any Semitic language (see also Stempel 1999: 60–63). Moreover, Semitic words containing this sound and which were recorded in Greek and Latin never show Gk. <γ> or L <g>, see e.g. Hebr. *Bēt-Leḥem* vs. Gk. *Βηθλεέμ*, or Pun. *ḥmlkt* vs. L *Himilco*. However, if the case for OE *plēon* as evidence of a Germanic form ⁺*pleha-*

179. Theo Vennemann (Munich, p.c.) draws attention to the semantic parallel in L *colere, cultivāre, agricola*.

could be strengthened (cf. above), then the root Vennemann (1998a) suggests would present a rather neat formal match. Nevertheless, even if ⁺*g* has to be assumed as root-final consonant in Germanic, this may well reflect a Semitic root, too. As Vennemann 1998b: 251) points out, the base *p-l* ‘to divide’ spawns several tri-consonantal roots, one of which is *p-l-g* ‘divide’, a potential source for Gmc. ⁺*plega-*. Unfortunately Vennemann (1998b) does not develop this approach any further, so that the concrete verb form of the root and the concrete contact language remain to be identified. Therefore, a Semitic source language in which this root is actually attested has to be found including a plausible framework.

Leaving aside a potential form ⁺*pleha-* and the corresponding root *p-l-h*, let us examine Sem. *p-l-g* ‘divide’ more closely in the light of the framework theory outlined in Mailhammer (2006), which was briefly mentioned above. The root in question is attested in Punic in the nominal form meaning ‘district, region’ (Krahmalkov 2000: 396). Although a verbal form is not attested in Punic, the fact that this noun with an identical meaning is found also in Biblical Hebrew (*peleg*, cf. Gesenius 1915: 641), permits the inference that the meaning ‘district, region’ already existed before the West Semitic language split up. Moreover, Hebrew possesses a verbal form of *p-l-g* meaning ‘cleave, furrow’ (cf. Koehler and Baumgartner 1983: 877). Assuming that Punic likewise had a verbal form with the same meaning, this equals the semantic starting point of Vennemann 1998b, i.e. that ‘dedicate, employ’ developed from ‘furrow’ in analogy to the semantic spectrum of E *cultivate*. In addition, the root favoured by Vennemann (1998b) may also have played a role: In Punic laryngeal and pharyngeal sounds had a strong tendency to become reduced to zero (Friedrich and Röllig 1999: 15). Consequently, a root *p-l-h* would probably have lost its last radical in later Punic, which makes a merger with *p-l-g* likely, bearing in mind the almost identical meaning. Nonetheless, forms of *p-l-h* may be responsible for the Old English forms showing *h* instead of *g*.

As Mailhammer (2006) and Mailhammer, Laker and Vennemann (2003) note, the formal correspondence of a verbal form between Semitic, Punic in particular, and Germanic is fairly unproblematic. For example, the 1st Sg. of the Punic perfect belonging to

the root *p-l-g* (*qal*-stem) would be **palag-tī*.¹⁸⁰ As Punic had a fairly stable dynamic accent on the final syllable with a tendency toward vowel reduction (Lipiński 1997: 183), it can be expected that the second radical was articulated more prominently than the first, possibly with vowel reduction in the first syllable (see Friedrich and Röllig 1999: 40), thus creating a hypothetical form **pəlag-tī*. Though the imperfective vocalization of the *qal*-stem is uncertain with **-plag-*, **-plug-* or **-plig-* as possible candidates, it can be assumed that the present stem was integrated in analogy to other regular *R(ê)-e-* present stems. According to Mailhammer (2006), the Punic perfect played a prominent part in the interference process, hence the loan was categorized just like any other Germanic verb with *a* in the preterit, i.e. all *e*-verbs. Since numerous present stem vowels were initially different from *e*, this did not present a problem. At some stage the stem vowel was regularized after the prevalent model of the primary system, i.e. **gab-* : **geba-* = **plag-* : *x* (*x* = **plega-*). The West Saxon forms with *h* could be explained within this framework as relic forms of the parallel root *p-l-h* 'furrow'. However, it is not entirely clear if and how the weak verb MHG *spulgen* can be connected to this putative loan complex (cf. below).

As a result of this discussion, there are two etymological suggestions for Gmc. **plega-*, which, however, are mutually exclusive, unless it could be demonstrated that the Latin and Old Irish forms can be derived from the Semitic root or even vice-versa. As shown above, the etymological suggestion mentioned by Seebold (1970: 364), based on L *indulgēre* 'dedicate' and OIr. *dligit* 'is licensed, deserves, is necessary' runs into serious formal problems that have to be considered fatal, despite a rather good semantic correspondence. By contrast, the alternative etymology presented here, going back to Vennemann (1998b) and involving Vennemann's theory on the prehistory of Germanic, is semantically plausible, with its

180. For the conjugational elements see Friedrich and Röllig (1999: 75–76). The vocalizational type, according to Koehler and Baumgartner (1983: 877) is *a* (the only existing type in the perfect stem in Punic and the usual type for transitive verbs, cf. Friedrich and Röllig 1999: 79 and also Stempel 1995), though Lipiński (1997: 345) notes that the vocalizational types are frequently unstable, which makes it well possible that the imperfective vocalization was **-plug-* or **-plig-* in addition to **-plag-*.

strong point being the much neater formal side (see below for the problem posed by MHG *spulgen*).

Thus, it has become clear that at this point Gmc. ⁺*plega-/pleha-* does not possess a convincing Indo-European etymology, and that the non-Indo-European etymology presented here has to be viewed as a plausible way to explain its origin. However, it is also apparent that the etymological fate of Gmc. ⁺*plega-/pleha-* ultimately will not be decided here but by future research. This discussion can contribute the following requirements for an etymology. First, the parallel existence of *g* and *h* as the root-final consonant in Germanic has to be explained. From an internal view, this is only possible under Verner's Law, which in turn points to an original zero grade present (cf. chapter two 3.1.8 and 4.2.2) and to a root-final ⁺*k* in the Indo-European parent language. Note that a loan etymology does not necessarily have to presuppose a zero grade present, as the occurrence of *g* vs. *h* may have different reasons (e.g. a loan doublet, as in the loan etymology presented above). Second, an etymological proposal has to account for MHG *spulgen* 'care for, be used to', which appears to be connected via *s*-mobile (see Matzel and Lühr 1986: 264–265), and which also seems to be based on a zero grade present. At any rate, *spulgen* prevents a reconstruction from IE ⁺*dl-*, which makes a connection with L *indulgēre* 'dedicate' and OIr. *dligit* 'is licensed, deserves, is necessary' impossible. Nevertheless, also for the Punic etymology discussed above, MHG *spulgen* is an additional complication.¹⁸¹

181. Tentatively one could explore the idea of an early derivation based on the zero grade of the root. Attested from late Old High German (Notker) onwards, only later attestations displaying *ü* (cf. DWB, s.v. *spulgen*) suggest that this weak verb belongs to the group of *-jan* verbs. Formally, the majority of the weak *-jan* verbs go back to causative-iterative formations with the suffixes IE ⁺*-éje/o-* and ⁺*-je/o-*. In the Indo-European verb system the root displays either *o-* or *ō-* grade. However, as the *-jan* verbs were very productive in Germanic, there are several formations on the basis of the zero grade, e.g. ON *flygja* 'go back and forth' (< Gmc. ⁺*flug-ja-*, cf. Seebold 1970: 201) and OHG *mullen* 'crush' (< Gmc. ⁺*mul-ja-*, cf. Seebold 1970: 345). For *spulgen*, however, one could therefore assume a very early derivation from the zero grade with *s*-mobile (cf. Southern 1999 for the productivity of *s*-mobile in Germanic), e.g. Pre-Gmc. ⁺*sp_lg-(e)ja-* > Gmc. ⁺*spulg-ja-*. It then seems conceivable that the

(30) DREPA- ‘hit’ (Seebold 1970: 166–167)

According to Seebold (1970: 167), Gmc. ⁺*drepa-* has no usable correspondences in the related languages (“keine brauchbare Vergleichsmöglichkeit”). Rix (2001) does not list it, thus it has to be placed into Category D. Mailhammer, Laker and Vennemann (2003) compare Gmc. ⁺*drepa-* to a Semitic root attested in Arab. *ḍrb* ‘hit’. From a semantic point of view the match is flawless, the phonological side requires a more detailed explanation. The root-initial sound in Arabic is derived from a Proto-Semitic emphatic lateral *ṣ* [ɬ], which merged with other phonemes in all Semitic languages except Arabic. This is ultimately the reason why Mailhammer, Laker and Vennemann (2003: 106) assume that this root survived only in Arabic. In the Canaanite languages, *ṣ* merged with the emphatic voiceless dental fricative *ṣ* some time in the first millennium B.C. (Friedrich and Röllig 1999: 10). This merger is in fact characteristic for the Canaanite languages, and it is usually assumed also for Phoenician and Punic. However, the exact quality of the Proto-Semitic *ṣ* around the middle of the first millennium B.C., when the contact between Punic and Pre-Germanic started, according to Vennemann (2004b), is unknown. In particular, it is unclear whether *ṣ* was voiced or voiceless; Lipiński (1997: 130) posits that the feature [+/- voice] was allophonic for this sound. Thus, Mailhammer, Laker and Vennemann (2003: 106) posit:

Perhaps it is safe to suggest that in the donor language at the time of borrowing it was a media (plosive or fricative, perhaps lateral) with some special glottal activity. If one assumes a consonant inventory for Pre-Germanic as traditionally reconstructed, i.e. including a series of mediae with a special phonation type (“mediae aspiratae”, *b^h d^h g^h g^{wh}*, perhaps murmured plosives, *b̥ d̥ g̥ g̥^w*), shifting to a series of plain mediae in Proto-Germanic by Grimm’s Law, a substitution of *dh* or *ḍ* for *ḍ* becomes quite likely.

connection to the morphological basis was lost due to formal reasons (s-mobile), so that the common metathesis that took place in other zero grade formations (see chapter two, 3.1.8 for the case of Gmc. ⁺*breka-* ‘break’) did not occur in this case and *spulgen* remained a relic, surviving only in the High German branch.

This interpretation of Proto-Semitic $\acute{s}$ as an ejective, i.e. glottalic, sound is supported by Stempel (1999: 67) after a discussion of the data. Thus, it is suggested that the Punic sound was perceived as being distinct from IE ^+d , and shared the development of the aspirated mediae, which may already have been in the process of shifting to fricatives, yielding ^+d in Germanic after the completion of Grimm's Law, which also changed Sem. ^+b into Gmc. ^+p . The remaining points of the formal side, i.e. integration into the morphological system, were outlined above and are explained in more detail in Mailhammer, Laker and Vennemann (2003) and in particular in Mailhammer (2006). In addition, Arabic loanwords involving this root that are attested in Modern Turkish, e.g. *darbe* 'hit, revolution', *darbuka* 'drum', represent parallel cases of borrowing.

As demonstrated by these examples, future research could act in support of either theory on the genesis of Germanic. The hypothesis advanced by Theo Vennemann is not the only one conceivable. There are other scenarios that may come into consideration (see e.g. the overview of adstratum research in Krefeld 2003). There is strong indication that the speakers of Germanic were not alone in Northern Europe (see e.g. Gamkrelidze 1995; Schrijver 2001, 2003; Kallio 2003; Koivulehto 2003; and Vennemann 2003d).

However, considering the supporting evidential mosaic taken not only from linguistics but also incorporating fields such as mythology and archeology, Theo Vennemann's hypothesis offers a high explanatory potential, despite the fact that it needs to be backed up by more evidence, which can only be left to future research. What this study has shown is that the morphological peculiarities in conjunction with the largely obscure etymological situation does not contradict this approach, it rather supports it. Some phenomena described match an explanation based on language contact, especially with a Semitic language, very well (see also Mailhammer 2006).

If this investigation has not failed to reach its aim, and if the results are correct, future research has to accommodate the morphological facts and clarify the etymological situation. Consequently, although purely system-internal explanations for the phenomena described in this study, including the assumption of lexemes being inherited unless proven otherwise, may still have to be considered the null hypothesis, in my view this position is somewhat shaken by the results presented here. I hope that this investigation will assist future investigations on the origin of Germanic, regardless of their direction.

Appendix A

Zero grade presents in Germanic

(? indicates uncertain cases)

1. ⁺*diga-* ‘knead’ zero grade root (Prokosch 1939: 149)
2. ⁺*fleuga-* ‘fly’ OHG *flucchen* ‘enable to fly’, Lith. *plaukiù* (Seebold 1970: 202)
3. ⁺*fregna-* ‘ask’ Goth. *fraihnan* ‘ask’ (Seebold 1970: 208)
4. ⁺*hrenda-* ‘push violently’ OWN *hrinda* ‘push violently’, Gk. *κροτέω* ‘hit, stomp, clap’ (Seebold 1970: 273)
5. ⁺*hwerba-* ‘turn to’ doublet with *f* in Old High German
6. ⁺*-leiba-* ‘stay’ Goth. *aflifnan*, OWN *lifa* ‘remain’ (Seebold 1970: 326; Jarosch 1995–: 178–180; Rix 2001: 408)
7. ⁺*skersa-* ‘scrape’ OHG *skerran* ‘scrape’, (Seebold 1970: 416; Jarosch 1995–: 237)
8. ?⁺*swelga-* ‘devour’ OHG *swelgan* : *swalh*, (Seebold 1970: 488–489; Jarosch 1995–: 308)
9. ⁺*þersa-* ‘dry’ OHG *therren* ‘dry’, OE *þyrre*, OHG *durri* ‘withered’, (Seebold 1970: 515 and Jarosch 1995–: 325)
10. ⁺*þrenha-* ‘crowd’ Seebold (1970: 520f) reconstructs root-final ⁺*h* because of Goth. *þreihan* ‘crowd’, all other dialects have *g*, e.g. OHG *dringan* ‘crowd’ plus numerous derived forms; verb should be listed as ⁺*þrengan* (cf. also Jarosch 1995–: 329; Rix 2001: 649)
11. ⁺*þwersa-* ‘fade’ OWN *þverra* ‘decrease’ (Seebold 1970: 529)
12. ⁺*wiga-* ‘fight’ zero grade root (Prokosch 1939: 149)
13. ⁺*wersa-* ‘confuse’ OS, OHG *werran* ‘confuse, instigate’ (Seebold 1970: 599)
14. ⁺*knuda-* ‘knead’ zero grade root (Seebold 1970: 303f)

15. ?⁺*plega-* ‘dedicate’ OE *plēon* ‘employ’ < Pre-OE ⁺*pleohan*, (Seebold 1970: 363–364; Jarosch 1995–: 206–207)
16. ⁺*swefa-* ‘sleep’ OWN *sofa* ‘sleep’ evidences zero grade, OE *swebban* ‘kill, dream’, long known aorist present (see e.g. Bammesberger 1984; Seebold 1970: 482–483; Jarosch 1995–: 302–304)
17. ⁺*truda-* ‘tread’ zero grade present, regularized version OE *tredan*, (Prokosch 1939: 150; Seebold 1970: 505–506; Jarosch 1995–: 321)
18. ⁺*kwema-* ‘come’ OE *cuman*, zero grade present, *e*-forms normalized (see Prokosch 1939: 150; Bammesberger 1984, 1986; Seebold 1970: 316–317; Jarosch 1995–: 159–161)
19. ⁺*wula-* ‘surge’ zero grade present (cf. chapter two)
20. ⁺*heufa-* ‘wail’ OS *hioban*, (Seebold 1970: 256; Jarosch 1995–: 103)
- 21 ⁺*pwenga-* ‘force’ Seebold (1970: 527) assumes Verner’s Law because of cognate material supported by Rix (2001: 655) < IE ⁺*t^henk-*, who reconstruct a R(*é*)-*e*-present for Germanic due to the attestations; zero grade present probable, as Verner’s Law points to unaccented root (see Jarosch 1995–: 333).
22. – 48. *ū*-forms (see Seebold 1970: 48; Jarosch 1995– and section 4.3 in chapter two)
49. – 64. *-dan*-verbs (see Seebold 1970: 60; Jarosch 1995–; Hill 2005 and section 4.3 in chapter two)

Appendix B

Categorization and excluded verbs

1. Categorization of strong verbs

Verb	Category	LIV	K 2002	Notes	No.
Class I					
⁺ <i>beida-</i>	C	71	n/a	D (RL)	1
⁺ <i>beita-</i>	A	70	106		2
⁺ <i>bleika-</i>	C	89	131	D (NL)	3
⁺ <i>diga</i>	A	140	910		4
⁺ <i>dreiba-</i>	D	155	927	D (RL, NL)	5
⁺ <i>dreita-</i>	D	155	n/a	D (RL, NL)	6
⁺ <i>dweina-</i>	B	150	n/a	U (RL)	7
⁺ <i>feiga-</i>	D	n/a	n/a	D (RL)	8
⁺ <i>feisa-</i>	D	n/a	n/a	D (RL, NL)	9
⁺ <i>fleiha-</i>	D	n/a	n/a		10
⁺ <i>fleita-</i>	D	n/a	300		11
⁺ <i>freisa-</i>	D	n/a	n/a	S: B, no cognates, [D (RL)]	12
⁺ <i>geina-</i>	B	173	326	D (NL)	13
⁺ <i>gleida-</i>	D	n/a	361	D (RL)	14
⁺ <i>gleita-</i>	D	n/a	361	D (RL)	15
⁺ <i>gneida-</i>	D	n/a	n/a	S: C, no cognates, [D (RL)]	16
⁺ <i>greina-</i>	C	180	371	S: B, no cognates; U (RL)	17
⁺ <i>greipa-</i>	C	203	371	D (RL, NL)	18
⁺ <i>hleida-</i>	D	n/a	574		18
⁺ <i>hneigwa-</i>	C	366	649	D (NL)	20
⁺ <i>hneipa</i>	B	365	n/a	D (NL)	21
⁺ <i>hneita-</i>	B	366	n/a		22
⁺ <i>hreiba-</i>	D	n/a	n/e		23
⁺ <i>hreina</i> ⁻¹	D	368	n/a		24
⁺ <i>hreina</i> ⁻²	D	n/a	n/a		25
⁺ <i>hweina-</i>	D	n/a	n/a	S: C, no cognates, [D (RL)]	26

Verb	Category	LIV	K 2002	Notes	No.
⁺ keika-	D	n/a	n/a		27
⁺ keina-	B	161	988, 991		28
⁺ kleiba-	B	189	494	D (RL)	29
⁺ kneida-	D	n/a	n/a		30
⁺ kreiga-	D	n/a	539		31
⁺ kweina-	D	n/a	n/a	D (RL)	32
⁺ lais-	D	409	566		33
⁺ leiba-	A	408	131		34
⁺ leihwa-	A	406	568		35
⁺ leipa-	C	410	568	U (RL)	36
⁺ meiga-	A	301	n/a		37
⁺ meipa-	A	430	610		38
⁺ neipa-	D	n/a	n/a	D (RL, NL)	39
⁺ neiwa-	D	n/a	n/a	D (RL)	40
⁺ reida-	C	502	755	D (NL)	41
⁺ reiha-	D	n/a	754	S: C, no suggestions [D (NL)]	42
⁺ reifa-	A	511	n/a	U (RL)	43
⁺ reika-	B	n/a	753		44
⁺ reipa-	D	n/a	n/a		45
⁺ reisa-	C	252	755	D (RL)	46
⁺ reista-	D	n/a	n/a	D (RL)	47
⁺ seiga-	D	n/a	n/a		48
⁺ seihwa	A	523	839		49
⁺ seika-	D	n/a	n/a		50
⁺ seipa-	A	521	n/a		51
⁺ seipa-	D	n/a	n/a	D (RL, NL)	52
⁺ skeina-	B	546	797	D (NL)	53
⁺ skeita-	B	547	797		54
⁺ skreia-	D	n/a	825		55
⁺ skreiba-	D	562	825	D (NL)	56
⁺ skreita-	D	n/a	n/a		57
⁺ skreipa-	D	563	826		58
⁺ sleiba-	D	n/a	n/a	D (RL)	59
⁺ sleida-	A	307	810		60
⁺ sleika-	B	566	808		61
⁺ sleipa-	D	566	808	D (RL)	62
⁺ sleita-	D	n/a	808	D (RL)	63
⁺ smeita-	D	569	813		64

Verb	Category	LIV	K 2002	Notes	No.
⁺ sneigwa-	A	573	818		65
⁺ sneiþa-	D	574	818		66
⁺ steiga-	A	593	879		67
⁺ speiwa-	A	583	862		68
⁺ spleita-	D	n/a	868	D (RL)	69
⁺ streida-	D	n/a	890	D (RL, NL)	70
⁺ streika-	C	603	890	D (NL)	71
⁺ sweiba-	D	n/a	n/a		72
⁺ sweifa-	D	n/a	832	D (RL)	73
⁺ sweiga-	D	n/a	n/a	S: C, no suggestions, [D (RL)]	74
⁺ sweika-	D	608	n/a	D (RL)	75
⁺ sweina-	D	609	835	S: B, no cognates, [D (RL, NL)]	76
⁺ sweiþa-	C	n/a	n/a	D (RL)	77
⁺ teiha-	A	108	1006		78
⁺ þeina-	C	618	n/a	U (RL)	79
⁺ þreiba-	D	n/a	n/a	S: C, no cognates, [D (RL)]	80
⁺ þweina-	D	n/a	n/a		81
⁺ þweita-	C	n/a	n/a	D (RL).	82
⁺ wait-	A	665	994		83
⁺ weiha-	B	670	978	D (RL), D(NL)	84
⁺ weika-	A	667	979		85
⁺ weipa-	C	671	979	D (RL)	86
⁺ weisa- ¹	C	n/a	n/a	D (RL)	87
⁺ weisa- ²	C	665	n/a	D (RL, NL)	88
⁺ weita-	B	665	994	D (RL)	89
⁺ wleita-	D	675	n/a	[D (NL)]	90
⁺ wreiba-	D	n/a	753	S: C, no cognates, [D (RL)]	91
⁺ wreiha- ¹	B	699	n/a	U (RL)	92
⁺ wreiha- ²	D	n/a	n/a	S: C, no cognates, [D (RL)]	93
⁺ wreita-	D	n/a	755	S: C, no cognates, [D (RL)]	94
⁺ wreiþa- ¹	D	700	n/a	D (NL)	95
⁺ wreiþa- ²	D	n/a	n/a	D (RL)	96
Class II					
⁺ beuda-	A	82	121		1
⁺ beuga-	B	85	120		2
⁺ bewwa-	A	98	124		3
⁺ breuta-	C	96	n/a	D (NL)	5
⁺ breuþa-	D	n/a	n/a	S. C, no cognates, [D (RL)]	6

Verb	Category	LIV	K 2002	Notes	No.
⁺ blewwa-	D	90	132		4
⁺ brewwa-	B	96	146		7
⁺ brūka-	C	96	146	D (RL)	8
⁺ daug-	C	148	908		9
⁺ dreuga- ¹	D	157	n/a	D (RL), D (NL)	10
⁺ dreuga- ²	A	157	933		11
⁺ dreupa-	D	156	929	D (RL), D (NL)	12
⁺ dreusa-	D	157	n/a		13
⁺ dūba-	D	n/a	n/a	D (RL)	14
⁺ dūka-	D	n/a	908	S: B, no cognates, D [(RL)]	15
⁺ feuka-	D	n/a	n/a	D (RL), D (NL)	16
⁺ fleuga-	B	488	301		17
⁺ fleuta-	B	488	301		18
⁺ freusa-	B	493	316		19
⁺ geusa-	C	179	n/a		20
⁺ geuta-	B	179	357	D (RL), D (NL)	21
⁺ glūpa-	D	n/a	n/a	S: B, no cognates, [D (RL)]	22
⁺ greuta- ²	D	n/a	373	D (RL), D(NL)	23
⁺ heufa-	B	359	n/a		24
⁺ hleuta-	D	365	n/a	D (NL)	25
⁺ hneuda-	D	n/a	n/a	S: C, no suggestions, [D (RL)]	26
⁺ hneupa-	D	n/a	n/a	D (RL)	27
⁺ hneusa-	D	n/a	n/a	S: C, no suggestions, [D (RL)]	28
⁺ hneuta-	D	n/a	n/a		29
⁺ hnewwa-	C	645	n/a		30
⁺ hreuda-	D	371	776	S: D, D (NL)	31
⁺ hreusa- ¹	D	n/a	n/a		32
⁺ hreusa- ²	D	n/a	n/a	D (RL)	33
⁺ hreuta- ¹	D	n/a	n/a	S. C, no cognates, [D (RL)]	34
⁺ hreuta- ²	D	n/a	n/a	S: B, no suggestions, [D (RL)]	35
⁺ hreupa-	D	n/a	n/a		36
⁺ hrewwa-	C	n/a	761	D (RL)	37
⁺ hūka-	C	n/a	n/a	D (RL)	38
⁺ keusa-	A	166	487		39
⁺ kewwa-	A	168	479		40
⁺ kreupa-	D	n/a	n/a	D (RL), D (NL)	43
⁺ kreusta-	D	n/a	n/a	D (RL)	44
⁺ krūda-	D	n/a	n/a	D (RL), D (NL)	45

Verb	Category	LIV	K 2002	Notes	No.
⁺ kleuba-	A	190	n/a		41
⁺ kreuka-	D	n/a	539		42
⁺ leuda-	A	248	579		46
⁺ leuga-	D	417	584	D (NL)	47
⁺ leuka-	C	415	n/a		48
⁺ leusa- ¹	B	417	954		49
⁺ leusta-	D	n/a	n/a	S: C, no cognates, [D (RL)]	50
⁺ lūka-	C	416	n/a		51
⁺ lūta-	D	415	n/a	D (RL), D (NL)	52
⁺ neuta-	D	456	346	D (NL)	53
⁺ reuda-	A	508	n/a		54
⁺ reufa-	B	510	746	D (RL)	55
⁺ reuka-	D	n/a	764	D (RL), (NL)	56
⁺ reuta- ¹	A	508	n/a		57
⁺ reuta- ²	D	n/a	n/a	S: C, no cognates, [D (RL)]	58
⁺ seuka-	D	n/a	847	D (RL)	59
⁺ seuḡa-	B	285	847	D (NL)	60
⁺ skeuba-	D	560	801		61
⁺ skeuta-	B	560	802	D (NL)	62
⁺ sleupa-	C	567	810	D (NL)	63
⁺ sleuta-	D	n/a	810	D (RL)	64
⁺ slūka-	A	567	811		65
⁺ smeuga-	C	571	815	D (NL)	66
⁺ smeuka-	C	n/a.	n/a	D (RL)	67
⁺ snewa-	C	575	809	D (NL)	68
⁺ spreuta-	D	n/a	870	D (RL)	69
⁺ steuba-	D	n/a	883	D (RL)	70
⁺ streuka-	B	605	n/a		71
⁺ strūda-	D	n/a	n/a		72
⁺ sūga-	C	539	787	D (NL)	73
⁺ sūpa-	D	n/a	787		74
⁺ teuha-	A	124	1011		75
⁺ ḡeuta-	D	n/a	n/a	D (RL, NL)	76
⁺ pleuha-	D	n/a	301	S: D, no cognates, [D (RL)]	77
⁺ belga-	C	73	85	D (NL)	2
⁺ bella- ¹	D	n/a	n/a		3
⁺ bella- ²	D	74	108	[D (NL)]	4
⁺ benda-	A	75	124		5

Verb	Category	LIV	K 2002	Notes	No.
⁺ <i>preuta-</i>	A	651	951	U (RL)	78
Class III					
⁺ <i>ann-</i>	B	302	365		1
⁺ <i>berga-</i>	C	79	111		6
⁺ <i>berka-</i>	D	n/a	n/a	S: B, no cognates, [D (RL)]	7
⁺ <i>bregda-</i>	D	n/a	146		8
⁺ <i>bremma-</i>	A	94	n/a	U (RL)	9
⁺ <i>brenga-</i>	C	282	151		10
⁺ <i>brenna-</i>	B	92; 219	149	D (RL)	11
⁺ <i>bresta-</i>	D	n/a	112	D (RL)	12
⁺ <i>dars-</i>	A	147	n/a		13
⁺ <i>delba-</i>	C	143	n/a		14
⁺ <i>denta-</i>	D	n/a	n/a	D (RL)	15
⁺ <i>derba-</i>	C	512	951		16
⁺ <i>drenka-</i>	D	n/a	930	D (RL)	17
⁺ <i>feh̥ta-</i>	A	467	281		18
⁺ <i>felha-</i>	D	471	101		19
⁺ <i>fen̥pa-</i>	B	471	294		20
⁺ <i>ferta-</i>	A	473	276		21
⁺ <i>flehta-</i>	A	486	299		22
⁺ <i>flenga-</i>	D	n/a	n/a	D (RL)	23
⁺ <i>fregna</i>	A	490	311		24
⁺ <i>gelda-</i>	C	197	343	D (NL)	25
⁺ <i>gella-</i>	D	n/a	342		26
⁺ <i>gelpa-</i>	D	n/a	n/a	D (RL), D (NL)	27
⁺ <i>genna-</i>	C	194	102		28
⁺ <i>gerra-</i>	D	n/a	n/a	D (RL), D (NL)	29
⁺ <i>glemma-</i>	D	n/a	361	D (RL)	30
⁺ <i>gnella-</i>	D	n/a	n/a		31
⁺ <i>gnesta-</i>	D	n/a	n/a	S: B, no cognates, [D (RL)]	32
⁺ <i>grenda-</i>	D	204	n/a	D (RL, NL)	33
⁺ <i>hella-</i>	C	361	405	D (RL)	34
⁺ <i>helpa-</i>	D	n/a	405	D (RL, NL)	35
⁺ <i>hrem̥pa-</i>	C	557	775		40
⁺ <i>hrenda-</i>	D	n/a	n/a	D (RL)	41
⁺ <i>hren̥kwa-</i>	D	563	n/a	D (NL)	42
⁺ <i>hres̥pa-</i>	D	n/a	744	S: C, no cognates, [D (RL)]	43
⁺ <i>hwerba-</i>	C	392	983		44

Verb	Category	LIV	K 2002	Notes	No.
⁺ henka-	B	555	413		36
⁺ henpa-	D	n/a	n/a	S: C, no suggestions, [D (RL)]	37
⁺ hlemma-	C	n/a	n/a	D (RL)	38
⁺ hneskwa-	D	n/a	n/a		39
⁺ kann-	A	163	521		45
⁺ kerba-	C	187	484		46
⁺ kerra-	C	n/a	n/a	D (RL)	47
⁺ klemba-	D	189	496	D (NL)	48
⁺ klempa-	D	n/a	492	D (RL)	49
⁺ klenga ⁻¹	D	n/a	497	S: C, no cognates, D (RL)	50
⁺ klenga ⁻²	D	n/a	n/a		51
⁺ klenkwa-	D	n/a	n/a	D (RL)	52
⁺ kremma ⁻¹	D	n/a	n/a	D (RL)	53
⁺ kremma ⁻²	D	n/a	373	D (RL)	54
⁺ krempa-	C	n/a	534	D (RL)	55
⁺ krenga-	D	n/a	n/a	S: C, no cognates, [D (RL)]	56
⁺ krenta-	D	n/a	n/a	S: C, no suggestions, [D (RL)]	57
⁺ kwella-	B	207	735	U (RL)	58
⁺ kwenka-	D	n/a	n/a	S:C, no comments, [D (RL)]	59
⁺ kwerra-	C	n/a	508	D (RL)	60
⁺ lempa-	D	n/a	n/a		61
⁺ lenga-	B	247	342	U (RL)	62
⁺ lenna-	C	406	n/a		63
⁺ leska	D	n/a	582	D (RL)	64
⁺ melka-	A	279	612		65
⁺ murna-	A	569	n/a		66
⁺ renna-	C	305	766		67
⁺ sengwa-	C	532	849		68
⁺ senkwa-	C	531	849		69
⁺ senpna-	B	532	849	U (RL)	70
⁺ serda-	D	n/a	n/a		71
⁺ skelba-	D	n/a	n/a		72
⁺ skersa-	C	559	794		78
⁺ skrella-	D	n/a	n/a		79
⁺ skrempa-	C	557	817	D (NL)	80
⁺ skrenda-	D	559	827		81
⁺ skrenkwa-	D	563	n/a	D (RL), D(NL)	82
⁺ slempa-	D	n/a	n/a		83

Verb	Category	LIV	K 2002	Notes	No.
⁺ <i>skelda</i>	D	n/a	798		73
⁺ <i>skella-</i>	C	361	792	U (RL)	74
⁺ <i>skerfa-</i>	D	557	n/a	D (RL), D (NL)	75
⁺ <i>skerpa</i> ⁻¹	D	n/a	n/a	D (RL)	76
⁺ <i>skerpa</i> ⁻²	D	n/a	n/a	D (RL), D (NL)	77
⁺ <i>slenda-</i>	C	307	810		84
⁺ <i>slengwa-</i>	D	567	810	D (NL)	85
⁺ <i>slenka-</i>	D	n/a	n/a		86
⁺ <i>slenta-</i>	D	n/a	n/a	D (RL)	87
⁺ <i>smella-</i>	D	n/a	n/a	S: C, no cognates, D [(RL)]	88
⁺ <i>(s)melta-</i>	A	431	814		89
⁺ <i>smerta-</i>	C	280	814		90
⁺ <i>snerha-</i>	B	574	n/a		91
⁺ <i>snerka-</i>	D	n/a	n/a	D (RL), D (NL)	92
⁺ <i>snerpa</i>	D	n/a	n/a	D (RL), D (NL)	93
⁺ <i>snerta-</i>	D	n/a	n/a		94
⁺ <i>spenna-</i>	C	578	866	U (RL)	95
⁺ <i>sprenga-</i>	D	583	871		96
⁺ <i>sprenta-</i>	D	583	871	D (RL, NL)	97
⁺ <i>spurna-</i>	A	585	869		98
⁺ <i>stenga-</i>	D	589	875	D (RL, NL)	99
⁺ <i>stenkwa-</i>	D	596	885	D (RL)	100
⁺ <i>sterba-</i>	C	512	881		101
⁺ <i>stregda-</i>	D	n/a	n/a	D (RL)	102
⁺ <i>swella</i>	D	n/a	833	D (RL)	103
⁺ <i>swelga-</i>	D	609	833		104
⁺ <i>swelta-</i>	D	610	n/a	D (RL)	105
⁺ <i>swemma-</i>	D	n/a	835	D (RL)	106
⁺ <i>swenda-</i>	D	610	835	D (NL)	107
⁺ <i>swengwa-</i>	D	611	835	S: C, no suggestions, [D (RL)]	108
⁺ <i>swenka-</i>	D	n/a	n/a		109
⁺ <i>þehsa-</i>	A	619	182		116
⁺ <i>þenda-</i>	D	n/a	n/a	D (RL)	117
⁺ <i>þenha-</i>	C	625	336		118
⁺ <i>þensa-</i>	A	629	71		119
⁺ <i>þersa-</i>	A	637	233		120
⁺ <i>þemma-</i>	D	n/a	n/a		121
⁺ <i>þrenha-</i>	C	649	215		122

Verb	Category	LIV	K 2002	Notes	No.
⁺ swerba-	C	613	n/a		110
⁺ swerka-	D	n/a	n/a	D (RL), D (NL)	111
⁺ tenɓna-	D	n/a	1018		112
⁺ tremɓa-	D	n/a	924	S: C, no cognates, [D (RL)]	113
⁺ trenna-	D	n/a	248	S: C, no cognates, [D (RL)]	114
⁺ ɓarf-	B	636	223		115
⁺ ɓrenta-	D	n/a	n/a	D (RL)	123
⁺ ɓreska-	C	651	214	D (RL)	124
⁺ ɓwenga-	C	655	1022		125
⁺ ɓwersa-	D	n/a	n/a		126
⁺ welta-	C	677	k.A.		127
⁺ welwa-	D	675	n/a		128
⁺ wenda-	A	681	991	U (RL)	129
⁺ wenna-	A	680	356		130
⁺ werɓa-	C	689	984	D (NL)	131
⁺ wersa-	A	690	993	U (RL)	132
⁺ werɓa-	A	691	984		133
⁺ wrenga-	D	700	766	D (NL)	134
⁺ wreskwa-	D	n/a	n/a	S: B, no cognates, [D (RL)]	135
Class IV					
⁺ bera-	A	76	335		1
⁺ dwela-	D	n/a	919	D (RL)	2
⁺ hela-	B	322	400		3
⁺ klena-	B	190	494	D (RL)	4
⁺ kwela-	B	207	734		5
⁺ kwema-	A	209	513		6
⁺ kwera-	D	n/a	n/a	D (RL)	7
⁺ man-	A	435	590		8
⁺ nema-	B	453	648		9
⁺ skal-	C	552	827	D (NL)	10
⁺ wel-	A	677	996		18
⁺ wula-	C	677	970	D (RL -> NL)	19
Class V					
⁺ bedja-	B	217	347		1
⁺ breka-	C	91	148	D (RL -> NL)	2
⁺ drepa-	D	153	927		3
⁺ es-	A	241	839		4
⁺ eta-	A	230	260		5

Verb	Category	LIV	K 2002	Notes	No.
⁺ skera-	A	556	799		11
⁺ stela-	C	594	879	D (RL)	12
⁺ stena-	A	596	886		13
⁺ swera-	B	613	831		14
⁺ tema-	C	114	1011		15
⁺ tera-	A	119	1009		16
⁺ pwera-	A	655	736		17
⁺ feha-	D	467	n/a	[D (NL)]	6
⁺ feta-	A	458	n/a		7
⁺ fneha-	C	n/a	n/a	D (RL)	8
⁺ geba-	C	193	335		9
⁺ geta-	C	194	952		10
⁺ hlefa-	A	363	n/a		11
⁺ hrepa-	B	370	739		12
⁺ jeda-	D	n/a	451		13
⁺ jeha-	D	311	104	D (RL -> NL)	14
⁺ jesa-	A	312	331		15
⁺ knuda-	D	191	503	D (RL), D(NL)	16
⁺ kresa-	D	n/a	n/a		17
⁺ kwepa-	C	212	n/a		18
⁺ legja-	A	398	575		19
⁺ leka-	D	397	563	D (NL)	20
⁺ lesa-	A	413	571		21
⁺ mag-	A	422	626		22
⁺ meta-	B	423	614	U (RL)	23
⁺ nah-	A	282	347	U (RL)	24
⁺ nesa-	A	454	345		25
⁺ plega-	D	n/a	696		26
⁺ reka-	A	304	749		27
⁺ sehwa-	C	525	837		28
⁺ setja-	A	513	851		29
⁺ skeha-	C	551	350	D (NL)	30
⁺ skrepa-	B	562	n/a	D (NL)	31
⁺ slekwa-	D	n/a	n/a		32
⁺ spreka-	C	582	870		33
⁺ stika-	B	593	878		34
⁺ strepa-	D	n/a	892		35
⁺ swefa-	A	612	n/a		36

Verb	Category	LIV	K 2002	Notes	No.
⁺ <i>pegja-</i>	C	618	n/a		37
⁺ <i>treka-</i>	D	n/a	n/a		38
⁺ <i>truda-</i>	D	n/a	928	S: B, but no cognates, [D (RL)]	39
⁺ <i>weba-</i>	A	658	975		40
⁺ <i>weda-</i>	B	659	n/a		41
⁺ <i>wega-</i>	A	661	988		42
⁺ <i>wesa</i> ⁻¹	A	293	985		43
⁺ <i>wesa</i> ⁻²	B	693	n/a		44
⁺ <i>wreka-</i>	C	697	738		45
Class VI					
⁺ <i>aka</i> ⁻¹	A	255	14		1
⁺ <i>aka</i> ⁻²	C	255	n/a		2
⁺ <i>ala-</i>	A	262	34		3
⁺ <i>ana-</i>	A	267	22		4
⁺ <i>baka-</i>	B	70	81		5
⁺ <i>daba-</i>	D	n/a	n/a		6
⁺ <i>dauja-</i>	B	147	918		7
⁺ <i>draga-</i>	B	154	923		8
⁺ <i>fara-</i>	A	472	271	U (RL)	9
⁺ <i>flaha-</i>	C	483	n/a	D (NL)	10
⁺ <i>frapja-</i>	B	493	n/a		11
⁺ <i>gala-</i>	D	n/a	643	D (RL, NL)	12
⁺ <i>gauja-</i>	D	n/a	n/a		13
⁺ <i>gnaga-</i>	C	n/a	644	D (RL)	14
⁺ <i>graba-</i>	B	201	367	D (NL)	15
⁺ <i>hafja-</i>	A	344	398		16
⁺ <i>hlahja-</i>	D	n/a	552	S: B, no cognates, D (RL)	17
⁺ <i>hlapa-</i>	C	362	553	D (NL)	18
⁺ <i>hnaba-</i>	D	n/a	n/a		19
⁺ <i>kala-</i>	C	n/a	462		20
⁺ <i>klauja-</i>	D	n/a	493		21
⁺ <i>kwabja-</i>	C	205	n/a		22
⁺ <i>laha-</i>	D		559	D (RL, NL)	23
⁺ <i>lapa-</i>	C	n/a	580	D (RL)	24
⁺ <i>mala-</i>	A	432	590		25
⁺ <i>mōt-</i>	D	n/a	639		26
⁺ <i>ōg-</i>	A	257	n/a		27
⁺ <i>safja-</i>	B	519	n/a	D (NL)	28

Verb	Category	LIV	K 2002	Notes	No.
⁺ saka-	B	520	778		29
⁺ skaba-	B	549	789		30
⁺ skaka-	D	n/a	n/a	D (RL)	31
⁺ skapja-	D	n/a	791	D (RL)	32
⁺ skapja-	C	551	790		33
⁺ slaha-	C	564	805		34
⁺ snaka-	D	n/a	817	D (RL, NL)	35
⁺ spana-	B	578	n/a	U (LIV)	36
⁺ standa-	A	590	878		37
⁺ stapja-	D	n/a	875	D (RL)	38
⁺ swarja-	C	613	836		39
⁺ taka-	B	616	n/a		40
⁺ pwaha-	D	n/a	1020	D (RL)	41
⁺ wada-	D	664	974	D (NL)	42
⁺ wahsja-	A	288	966		43
⁺ wakna-	C	660	966		44
⁺ wahwna-	D	n/a	257		45
⁺ waska-	D	n/a	973	D (RL)	46
Red. verbs					
⁺ aih-	A	223	231		1
⁺ aika-	D	n/a	n/a	D (RL)	2
⁺ arja-	B	272	62		3
⁺ auda-	D	n/a	n/a	D (RL)	4
⁺ auka-	A	274	70		5
⁺ ausan-	A	275	n/a		6
⁺ bauta-	C	82	37		7
⁺ bēga-	D	68	n/a	D (NL)	8
⁺ blanda-	D	89	132	D (NL)	9
⁺ blēa-	C	87	128	D (NL)	10
⁺ banna-	B	69	89		11
⁺ blōa-	C	88	134	D (NL)	12
⁺ blōta-	D	n/a	n/a		13
⁺ bōwwa-	A	98	96		14
⁺ brēda-	D	n/a	145	D (RL)	15
⁺ dōn-	A	136	935		16
⁺ drēda-	D	n/a	n/a	S: B, no suggestion, D (RL)	17
⁺ falla-	C	464	273		18
⁺ falta-	B	n/a	274	D (RL)	19

Verb	Category	LIV	K 2002	Notes	No.
⁺ <i>falpa-</i>	D	n/a	274	D (RL)	20
⁺ <i>fanha-</i>	B	461	275		21
⁺ <i>flōwa-</i>	A	485	306		22
⁺ <i>flōka-</i>	A	484	304	U (RL)	23
⁺ <i>fraisa-</i>	D	n/a	n/a		24
⁺ <i>ganga-</i>	B	175	339		25
⁺ <i>gē-</i>	A	196	339		26
⁺ <i>grēta-</i>	D	180	377	S: B, but no cognates, D (RL)	27
⁺ <i>grōa-</i>	D	n/a	376	S: B, but no cognates, D (RL)	28
⁺ <i>haita-</i>	B	321	404		29
⁺ <i>halda-</i>	B	348	387		30
⁺ <i>hanha-</i>	B	325	390		31
⁺ <i>hawwa-</i>	A	345	396		32
⁺ <i>haufa-</i>	C	n/a	n/a	D (RL)	33
⁺ <i>hlaupa-</i>	D	324	561		34
⁺ <i>hrōpa-</i>	D	n/a	774	S: B, no cognates, D (RL)	35
⁺ <i>hwēta-</i>	D	n/a	98		36
⁺ <i>hwōpa-</i>	D	n/a	n/a		37
⁺ <i>hwōsa-</i>	B	377/2	428	D (RL)	38
⁺ <i>knēa-</i>	A	168	n/a		39
⁺ <i>krēa-</i>	D	n/a	533	D (RL)	40
⁺ <i>knōda-</i>	D	n/a	n/a	D (RL)	41
⁺ <i>laika-</i>	B	363	567		42
⁺ <i>lēja-</i>	D	n/a	n/a	D (RL)	43
⁺ <i>lēta-</i>	A	400	558		44
⁺ <i>maita-</i>	C	427	611	U (RL)	45
⁺ <i>mēa-</i>	B	279	590		46
⁺ <i>rēda-</i>	B	499	754		47
⁺ <i>rōa-</i>	A	224	774		48
⁺ <i>salta-</i>	A	n/a	783		49
⁺ <i>sēa-</i>	A	517	779		50
⁺ <i>skaida-</i>	B	547	797		51
⁺ <i>skalda-</i>	D	n/a	792		52
⁺ <i>skrauda-</i>	D	n/a	826	D (RL)	53
⁺ <i>slēpa-</i>	D	565	805	D (NL)	54
⁺ <i>spaita-</i>	C	n/a	n/a	D (RL)	55
⁺ <i>spalda-</i>	B	577	860	D (RL)	56
⁺ <i>spanna-</i>	C	578	860		57

Verb	Category	LIV	K 2002	Notes	No.
⁺ <i>glōa-</i>	D	n/a	363	D (RL)	58
⁺ <i>spōa-</i>	B	584	872		59
⁺ <i>stalda-</i>	D	n/a	383	S: C, no cognates, D (RL)	60
⁺ <i>stauta-</i>	A	601	888		61
⁺ <i>stē-</i>	A	590	878		62
⁺ <i>swaipa-</i>	C	373	832	D (RL)	63
⁺ <i>swōa-</i>	D	n/a	898		64
⁺ <i>swōga-</i>	D	n/a	n/a	S: C, no cognates, D (RL)	65
⁺ <i>taisa-</i>	D	n/a	n/a	D (RL)	66
⁺ <i>prēa-</i>	B	647	214		67
⁺ <i>prōwwa-</i>	D	n/a	n/a		68
⁺ <i>walda-</i>	B	676	970		69
⁺ <i>walka-</i>	A	676	970		70
⁺ <i>walla-</i>	C	677	970		71
⁺ <i>wēja-</i>	A	287	977		72
⁺ <i>wōpja-</i>	D	n/a	n/a	D (RL)	73
Total no.					492

2. Verbs excluded from the analysis

Class	Reason for exclusion	No.
CLASS I		
⁺ <i>deika-</i>	PGF	1
⁺ <i>gleia-</i>	PGF	2
⁺ <i>hleiba-</i>	SIF	3
⁺ <i>kleipa-</i>	SIF	4
⁺ <i>kneipa-</i>	PGF	5
⁺ <i>kreia-</i>	PGF	6
⁺ <i>kreiska-</i>	PGF, SIF	7
⁺ <i>kreita-</i>	PGF	8
⁺ <i>neiþa-</i>	SIF	9
⁺ <i>peipa-</i>	PGF	10
⁺ <i>reiha-</i>	SIF	11
⁺ <i>reima-</i>	SIF	12
⁺ <i>reina-</i>	SIF	13
⁺ <i>skeida-</i>	DU	14

Class	Reason for exclusion	No.
⁺ sweina-	DU	15
⁺ sweiḥa-	DU	16
⁺ peiha-	DU	17
⁺ preika-	DU	18
⁺ wiga-	DU	19
plus 13 verbs classed as doubtful by Seebold (1970)		total
		32
Class II		
⁺ breuta- ²	PGF	1
⁺ būga-	DU	2
⁺ dewa-	DU	3
⁺ drūpa-	DU	4
⁺ fleuha-	DU	5
⁺ geupa-	AI	6
⁺ hrūta-	DU	7
⁺ klūba-	DU	8
⁺ kneuda-	DU	9
⁺ krūpa-	DU	10
⁺ lūka- ¹	DU	11
⁺ rūka-	DU	12
⁺ skūba-	DU	13
⁺ slūpa-	DU	14
⁺ slūta-	DU	15
⁺ smūga-	DU	16
⁺ snewwa-	DU	17
⁺ sprūta-	DU	18
⁺ stūba-	DU	19
⁺ sūka-	DU	20
⁺ pūba-	DU	21
plus nine verbs classed as doubtful by Seebold (1970)		total
		30
Class III		
⁺ genna- ²	DU	1
⁺ grenna-	PGF, SIF	2
⁺ merka-	AI	3
⁺ nenḥa-	AI	4
⁺ skrenga-	DU	5
⁺ sterka-	AI	6

Class	Reason for exclusion	No.
⁺ <i>tenga-</i>	SIF	7
⁺ <i>pwenda-</i>	DU	8
plus seven verbs classed as doubtful by Seebold (1970)		total 15
Class IV		
⁺ <i>brema-</i>	DU	1
⁺ <i>fela-</i>	DU	2
⁺ <i>hlema-</i>	DU	3
⁺ <i>kuma-</i>	DU	4
⁺ <i>swema-</i>	DU	5
plus one verb classed as doubtful by Seebold (1970)		total 6
Class V		
⁺ <i>fregja-</i>	DU	1
⁺ <i>frehna-</i>	DU	2
⁺ <i>hweka-</i>	AI	3
⁺ <i>knedā-</i>	DU	4
⁺ <i>rekwa-</i>	PGD	5
⁺ <i>skrekka-</i>	PGF	6
⁺ <i>sufa-</i>	DU	7
⁺ <i>preka-</i>	PGF	8
⁺ <i>trekka-</i>	DU	9
⁺ <i>wega</i> ⁻¹	DU	10
plus six verbs classed as doubtful by Seebold (1970)		total 16
Class VI		
⁺ <i>bakka-</i>	DU	1
⁺ <i>fraga-</i>	AI	2
⁺ <i>klaha-</i>	DU	3
⁺ <i>swara-</i>	DU	4
⁺ <i>wahsa-</i>	DU	5
plus five verbs classed as doubtful by Seebold (1970)		total 10
Red. verbs		
⁺ <i>aika</i> ⁻²	DU	1
⁺ <i>blēsa-</i>	DU	2
⁺ <i>bnōwwa-</i>	AI	3
⁺ <i>brauta-</i>	DU	4

Class	Reason for exclusion	No.
⁺ <i>brōka-</i>	AI	5
⁺ <i>dauga-</i>	AI	6
⁺ <i>falda-</i>	DU	7
⁺ <i>falga-</i>	AI	8
⁺ <i>halpa-</i>	DU	9
⁺ <i>naupa-</i>	AI	10
⁺ <i>skaiþa-</i>	DU	11
⁺ <i>snōwa-</i>	DU	12
⁺ <i>stanga-</i>	AI	13
⁺ <i>plaiha-</i>	AI	14
⁺ <i>walta-</i>	AI	15
plus 13 verbs classed as doubtful by Seebold (1970)		total
		28
total number of excluded verbs		137

3. Abbreviations

LIV: Rix (2001), page number

K 2002: Kluge (2002), page number

RL = recent literature provides additional data

NL = cognates only in neighbouring languages

D = downgraded

D (RL, NL) = downgrading by two degrees due to both factors

D (RL), (NL) = downgrading by one degree, but both factors apply

D (RL -> NL) = downgrading because due to recent literature the etymology rests only on cognates from neighbouring languages

[] relevant factors apply, but play no role in categorization

PGF = post-Germanic formation

DU = doublet

SIF = strong inflection secondary

AI = attestation insufficient to posit a strong verb

S: Seebold 1970

S: B, but no cognates/examples/suggestions = Seebold's categorization is obviously erroneous, since there is no etymological data to justify his verdict. Therefore, the relevant verb is automatically classed as Category D, as there exists no etymology; in most cases recent literature confirms the lack of an etymology.

Appendix C

Quantitative evaluations using alternative criteria

1. No downgrading by cognates from neighbouring languages

Due to the fact that older etymological literature in particular often fully accept attestations from adjacent languages as potential cognates, in this evaluation of the strong verbs' etymological situation there is no downgrading of etymologies that are based on cognates from neighbouring languages only.

Results:

Category A (accepted IE etymology):	21.5 % (106 verbs)
Category B (inexact IE etymology):	16.7 % (83)
Category C (uncertain IE etymology):	22.4 % (110)
Category D (no IE etymology):	39.4 % (193)

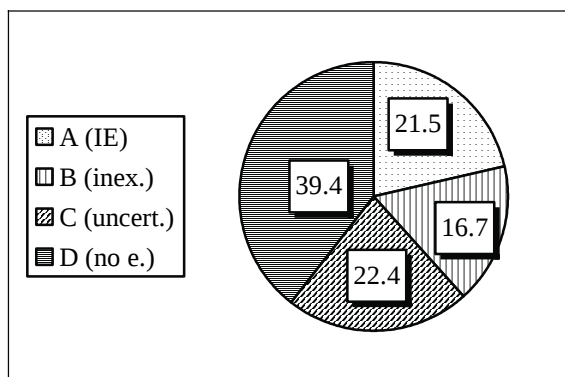


Figure 13. Analysis C1

2. No cognates from neighbouring languages allowed

Contrary to the above-mentioned tendency in older etymological literature, there also exists the opinion that neighbouring languages cannot provide

any etymological data at all. As there is the possibility that a given etymon from an adjacent language represent a loanword, it is consistent to disregard potential cognates from neighbouring languages altogether.

Results:

Category A (accepted IE etymology):	19.9 % (98 verbs)
Category B (inexact IE etymology):	12.6 % (62)
Category C (uncertain IE etymology):	15.7 % (77)
Category D (no IE etymology):	51.8 % (255)

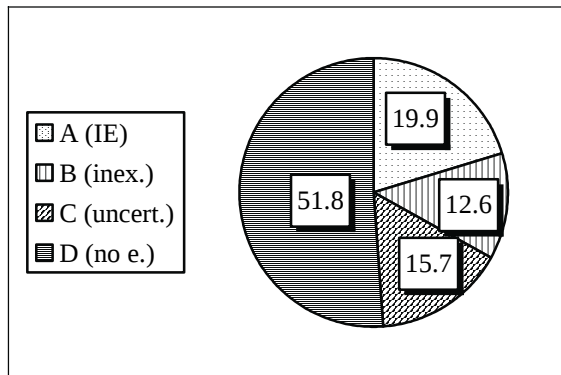


Figure 14. Analysis C2

3. Data from Seebold (1970) only

Mailhammer (2001) analysed the etymological situation of the classes I to VI according to Seebold (1970). Mailhammer (2002) quantified the reduplicating verbs. In both studies downgrading took place if an etymological connection was only based on cognates from neighbouring languages. The results presented here combine both analyses.

3.1. Classes I to VI overall results (Mailhammer 2001)

Category A (accepted IE etymology):	16.6 % (74 verbs)
Category B (inexact IE etymology):	18.3 % (82)
Category C (uncertain IE etymology):	21.9 % (98)
Category D (no IE etymology):	43.1 % (193)

3.2. Reduplicating verbs (Mailhammer 2002)

Category A (accepted IE etymology):	20.3 % (14 verbs)
Category B (inexact IE etymology):	15.9 % (11)
Category C (uncertain IE etymology):	27.5 % (19)
Category D (no IE etymology):	36.2 % (25)

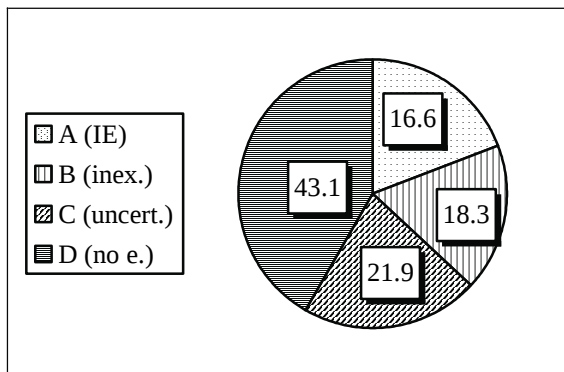


Figure 15. Classes I to VI (Mailhammer 2001)

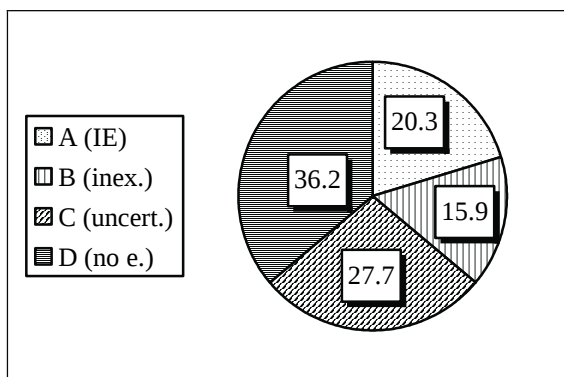


Figure 16. Reduplicating verbs (Mailhammer 2002)

3.3. Combination of Mailhammer (2001) and (2002)

Category A (accepted IE etymology):	17.1 % (88 verbs)
Category B (inexact IE etymology):	18.0 % (93)
Category C (uncertain IE etymology):	22.7 % (117)
Category D (no IE etymology):	42.2 % (218)

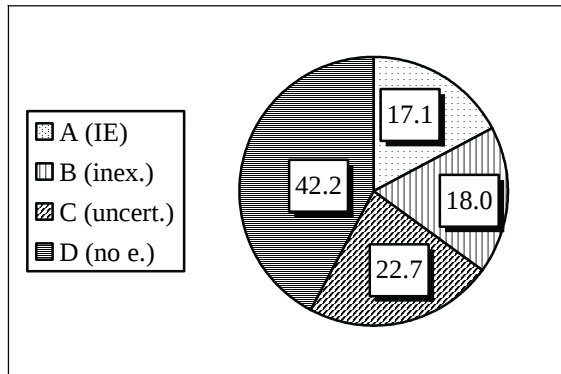


Figure 17. Analysis C3 (Mailhammer 2001 & 2002)

4. Contrastive Analysis

Figure 18 shows the alternative evaluations (C1, C2 and C3, cf. above) in comparison to the analysis carried out in the main part of this study.

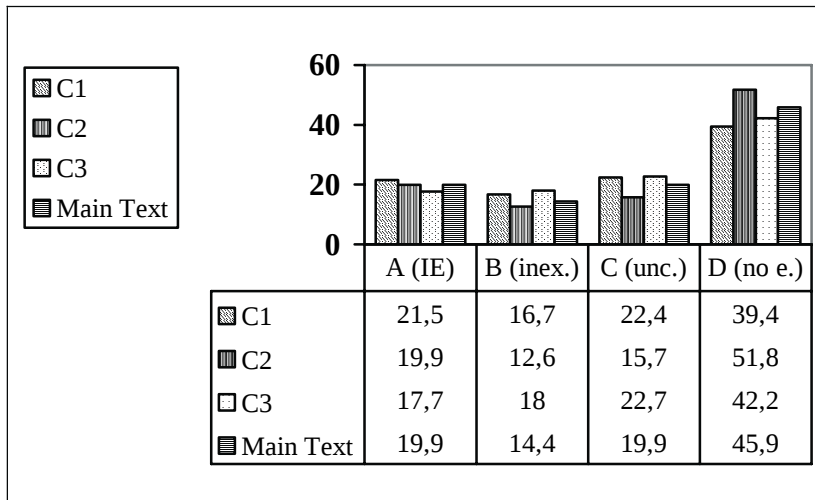


Figure 18. Contrastive analysis

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